

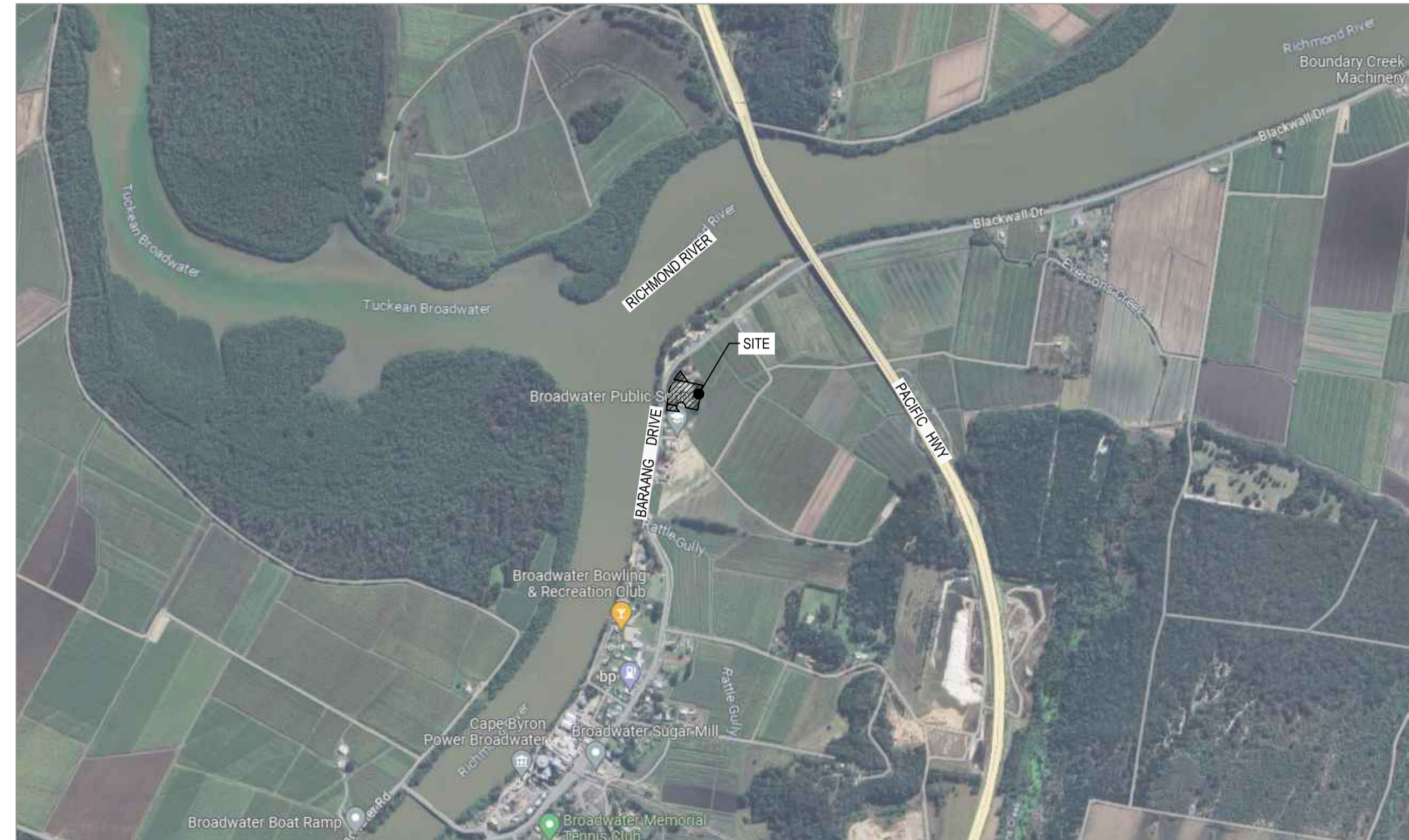
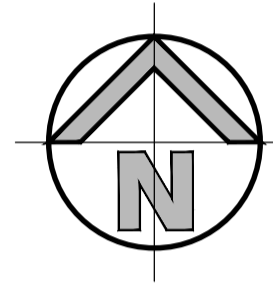
# BROADWATER PUBLIC SCHOOL

## 9 BYRNES STREET, BROADWATER NSW 2472

### CIVIL ENGINEERING WORKS

#### GENERAL NOTES:

- ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH RICHMOND VALLEY COUNCIL'S SPECIFICATION. CONTRACTOR TO OBTAIN AND RETAIN A COPY ON SITE DURING THE COURSE OF THE WORKS.
- ALL NEW WORKS ARE TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS AND MARRY IN A 'WORKMANLIKE' MANNER.
- THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL SERVICES WITH EACH RELEVANT AUTHORITY. ANY DAMAGE TO SERVICES SHALL BE RECTIFIED BY THE CONTRACTOR OR THE RELEVANT AUTHORITY AT THE CONTRACTOR'S EXPENSE. SERVICES SHOWN ON THESE PLANS ARE ONLY THOSE EVIDENT AT THE TIME OF SURVEY OR AS DETERMINED FROM SERVICE DIAGRAMS. H & H CONSULTING ENGINEERS PTY. LTD CANNOT GUARANTEE THE INFORMATION SHOWN NOR ACCEPT ANY RESPONSIBILITY FOR INACCURACIES OR INCOMPLETE DATA.
- SERVICES & ACCESSES TO THE EXISTING PROPERTIES ARE TO BE MAINTAINED IN WORKING ORDER AT ALL TIMES DURING CONSTRUCTION.
- ADJUST EXISTING SERVICE COVERS TO SUIT NEW FINISHED LEVELS TO RELEVANT AUTHORITY REQUIREMENTS WHERE NECESSARY.
- REINSTATE AND STABILISE ALL DISTURBED LANDSCAPED AREAS.
- MINIMUM GRADE OF SUBSOIL SHALL BE 0.5% (1:200) FALL TO OUTLETS.
- ALL TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES ARE TO BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS, EROSION AND SEDIMENTATION CONTROL PLAN AND RICHMOND VALLEY COUNCIL'S REQUIREMENTS WHERE APPLICABLE.
- CONTRACTOR TO CHECK AND CONFIRM SITE DRAINAGE CONNECTIONS ACROSS THE VERGE PRIOR TO COMMENCEMENT OF SITE DRAINAGE WORKS.
- PROPERTIES AFFECTED BY THE WORKS ARE TO BE NOTIFIED IN ADVANCE WHERE DISRUPTION TO EXISTING ACCESS IS LIKELY.



#### LOCALITY SKETCH

SCALE: N.T.S.

#### EXISTING SERVICES & FEATURES

- THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL (IF REQUIRED) OF ALL EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA OR AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT.
- THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.
- PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN APPROVAL OF HIS PROGRAM FOR THE RELOCATION/ CONSTRUCTION OF TEMPORARY SERVICES.
- CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN SUPPLY TO EXISTING BUILDING REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED, THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.
- INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL FROM THE SUPERINTENDENT FOR TIME OF INTERRUPTION.
- EXISTING SERVICES, BUILDINGS, EXTERNAL STRUCTURES AND TREES SHOWN ON THESE DRAWINGS ARE EXISTING FEATURES PRIOR TO ANY DEMOLITION WORKS.
- EXISTING SERVICES UNLESS SHOWN ON SURVEY PLAN HAVE BEEN PLOTTED FROM SERVICES SEARCH PLANS AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE A 'DIAL BEFORE YOU DIG' SEARCH AND TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
- ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø80 uPVC SEWER GRADE CONDUITS EXTENDING A MINIMUM OF 500mm BEYOND EDGE OF PAVING.

#### DRAWING SCHEDULE

DWG NO.	DESCRIPTION
BRO-CIV-PP-DWG-0000	COVER SHEET, DRAWING SCHEDULE, NOTES & LOCALITY SKETCH
BRO-CIV-PP-DWG-0050	GENERAL ARRANGEMENT PLAN
BRO-CIV-PP-DWG-0100	DETAIL PLAN - SHEET 1 OF 2
BRO-CIV-PP-DWG-0101	DETAIL PLAN - SHEET 2 OF 2
BRO-CIV-PP-DWG-0200	STORMWATER MISCELLANEOUS DETAILS & PIT LID SCHEDULE
BRO-CIV-PP-DWG-0201	RAINWATER/ DETENTION TANK PLAN AND SECTION
BRO-CIV-PP-DWG-0250	PRE-DEVELOPMENT CATCHMENT PLAN
BRO-CIV-PP-DWG-0251	POST-DEVELOPMENT CATCHMENT PLAN
BRO-CIV-PP-DWG-0901	SEDIMENT & EROSION CONTROL PLAN
BRO-CIV-PP-DWG-0910	SEDIMENT & EROSION CONTROL TYPICAL SECTIONS & DETAILS

#### SITWORKS NOTES

- DATUM : A.H.D.
- ORIGIN OF LEVELS : REFER TO BENCH OR STATE SURVEY MARKS WHERE SHOWN ON PLAN.
- CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO THE COMMENCEMENT OF WORK.
- ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS & THE DIRECTIONS OF THE SUPERINTENDENT.
- EXISTING SERVICES UNLESS SHOWN ON THE SURVEY PLAN HAVE BEEN PLOTTED FROM SERVICES SEARCH PLANS AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
- WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS ACHIEVED.
- THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.
- CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATION IS TO BE UNDERTAKEN OVER TELSTRA OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS.
- CONTRACTOR TO OBTAIN AUTHORITY APPROVALS WHERE APPLICABLE.
- MAKE SMOOTH TRANSITION TO EXISTING SURFACES AND MAKE GOOD.
- THESE PLANS SHALL BE READ IN CONJUNCTION WITH APPROVED LANDSCAPE, ARCHITECTURAL, STRUCTURAL, HYDRAULIC AND MECHANICAL DRAWINGS AND SPECIFICATIONS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED RELATING TO DEVELOPMENT AT THE SITE.
- TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MINIMUM OF 50mm IN BITUMINOUS PAVING.
- ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø80 uPVC SEWER GRADE CONDUITS EXTENDING A MINIMUM OF 500mm BEYOND EDGE OF PAVING.
- GRADES TO PAVEMENTS TO BE AS IMPLIED BY RL'S ON PLAN . GRADE EVENLY BETWEEN NOMINATED RL'S. AREAS EXHIBITING PONDING GREATER THAN 5mm DEPTH WILL NOT BE ACCEPTED UNLESS IN A DESIGNATED SAG POINT.
- ALL COVERS AND GRATES ETC TO EXISTING SERVICE UTILITIES ARE TO BE ADJUSTED TO SUIT NEW FINISHED SURFACE LEVELS WHERE APPLICABLE.

#### SURVEY NOTES

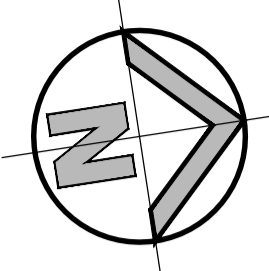
THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY THE SURVEYOR SPECIFIED IN THE TITLE BLOCK. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. HENRY AND HYMAS PTY. LTD. DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT HENRY AND HYMAS PTY. LTD. THE FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM ORIGINAL SURVEY DOCUMENTS.

ORIGIN OF LEVELS PM43027 RL.2.099  
 DATUM A.H.D.  
 CONTOUR INTERVAL 0.2m

**FOR DA ONLY**

SURVEY INFORMATION				CLIENT				PROJECT				DRAWING INFORMATION			
SURVEYED BY BEVERIDGE WILLIAMS DATUM: A.H.D. ORIGIN OF LEVELS: PM 43027 RL 2.099				Client - Architect PEDAVOLI ARCHITECTS PTY LTD This drawing and design remains the property of Henry & Hymas and may not be copied in whole or in part without the prior written approval of Henry & Hymas.				Project BROADWATER PUBLIC SCHOOL 9 BYRNES STREET, BROADWATER NSW 2472 Title COVER SHEET, DRAWING SCHEDULE, NOTES & LOCALITY SKETCH				Drawn M.Pereira Checked N.Heazlewood Design N.Heazlewood Approved A.Francis Original issue date JUNE Scale @A1 NTS Drawing number BRO-CIV-PP-DWG-0000 Revision 04			
04	ISSUED FOR DA ONLY	AFe	NH	08.02.2024											
03	ISSUED FOR DA ONLY	AFe	NH	19.10.2023											
02	ISSUED FOR REF	MP	NH	18.07.2023											
01	ISSUED FOR CO-ORDINATION	MP	NH	26.06.2023											
REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE						





BRO-CIV-PP-DWG-0100

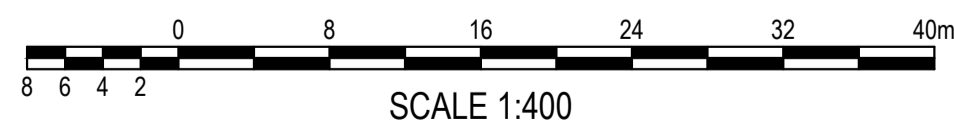
BRO-CIV-PP-DWG-0101

BARAANG DRIVE

TRAVELERS  
ARM LANE

BARAANG DRIVE

**GENERAL ARRANGEMENT PLAN**  
SCALE: 1:400



**FOR DA ONLY**

SURVEY INFORMATION		Client	
SURVEYED BY BEVERIDGE WILLIAMS DATUM: A.H.D. ORIGIN OF LEVELS: PM 43027 RL 2.099		Suite 2.01 828 Pacific Highway Gordon NSW 2072	
01 ISSUED FOR DA ONLY		Architect <b>PEDAVOLI ARCHITECTS PTY LTD</b>	
REVISION	AMENDMENT	Drawn A.Fernandes	Telephone +61 2 9417 8400
		Designed N.Heazlewood	Facsimile +61 2 9417 8337
		Date 08.02.2024	Email email@hthconsult.com.au
			Web www.henryandhymas.com.au
			H&H Job No: 230889

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**DRAWING TO BE PRINTED IN COLOUR**



Project  
**BROADWATER PUBLIC SCHOOL**  
9 BYRNES STREET, BROADWATER NSW 2472

Title  
**GENERAL ARRANGEMENT PLAN**

Drawn	Designed	Original issue date
A.Fernandes	N.Heazlewood	FEB 2024
Checked N.Heazlewood	Approved A.Fernandes	Scale @A1 1:400
Drawing number <b>BRO-CIV-PP-DWG-0050</b>		Revision <b>01</b>









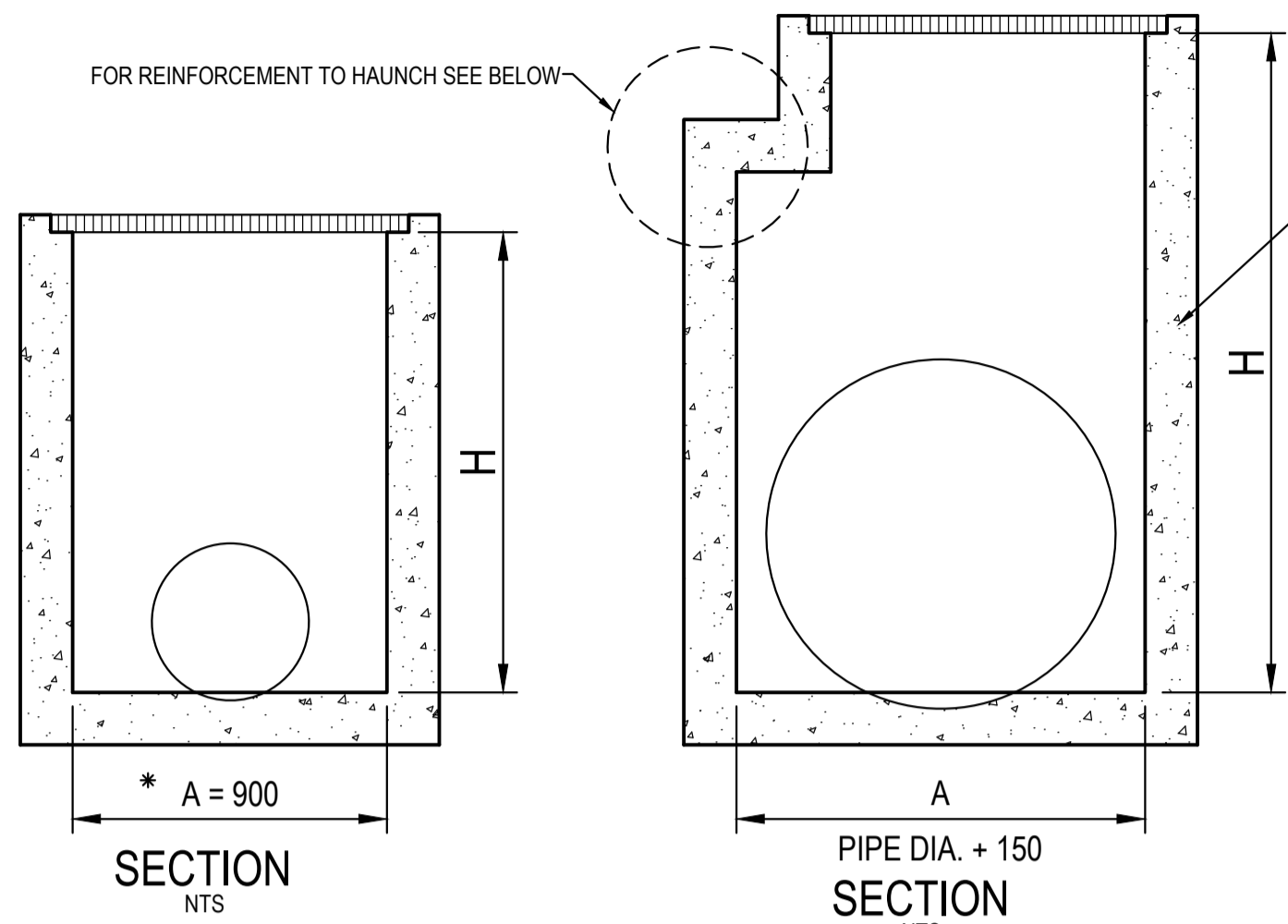


TYPICAL PIT CHAMBER SIZES

IT IS THE CONTRACTORS RESPONSIBILITY TO SELECT PIT CHAMBER SIZE WITH REGARDS TO PIPE SIZE, DEPTH TO INVERT AND SKEW ANGLE. REFER SKETCHES BELOW.

- SELECT PIT CHAMBER USING THE STEPS BELOW:
- SELECT PIT CHAMBER SIZE DEPENDING ON THE PIPE DIAMETERS.
- CHECK PIT CHAMBER SIZE TO SATISFY DEPTH TO INVERT REQUIREMENTS.
- CHECK PIT CHAMBER DIMENSIONS TO SATISFY THE SKEW ANGLE IN THE TABLE.

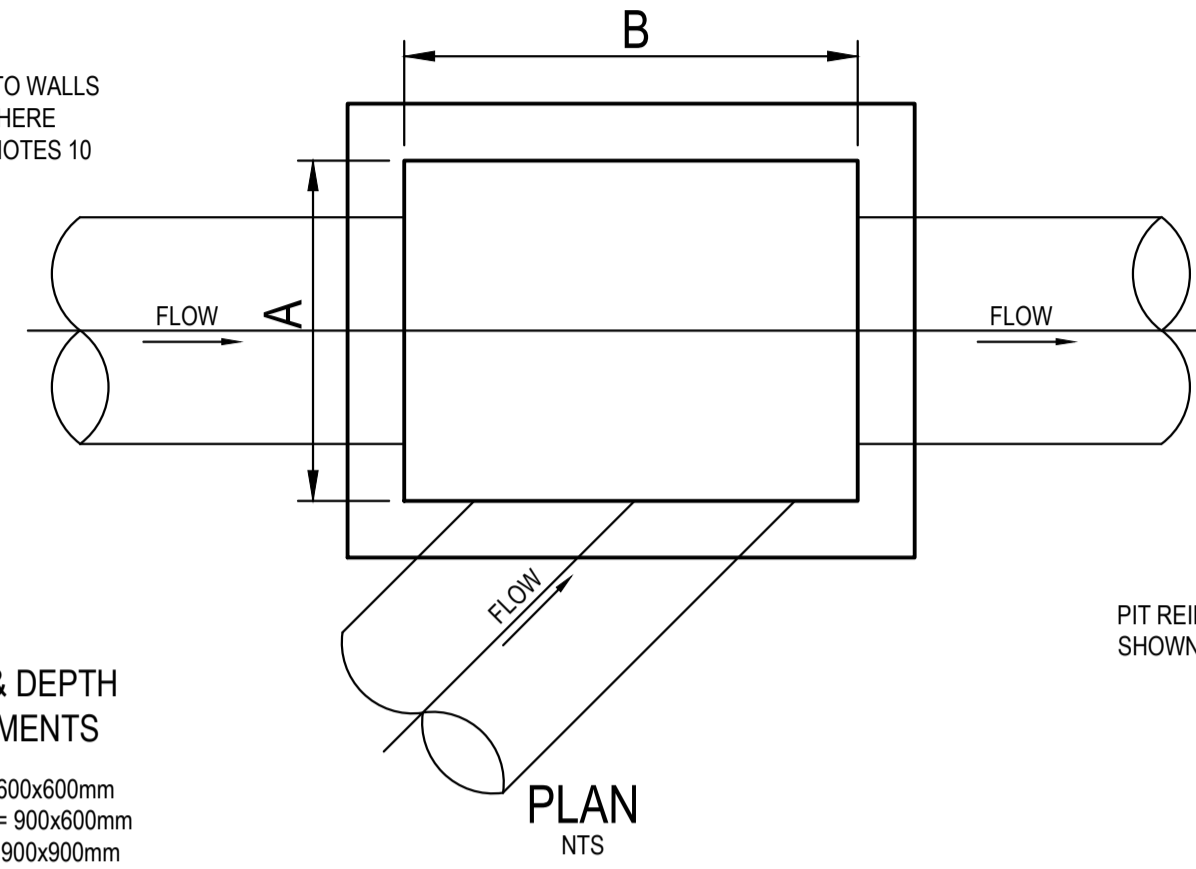
FOR B = 600mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 225mm  
 FOR B = 900mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 375mm  
 FOR B = 1200mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 600mm  
 FOR B = 1500mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 825mm  
 FOR B = 1900mm - MAX. SIDE ENTRY PIPE AT 45° SKEW = 1050mm



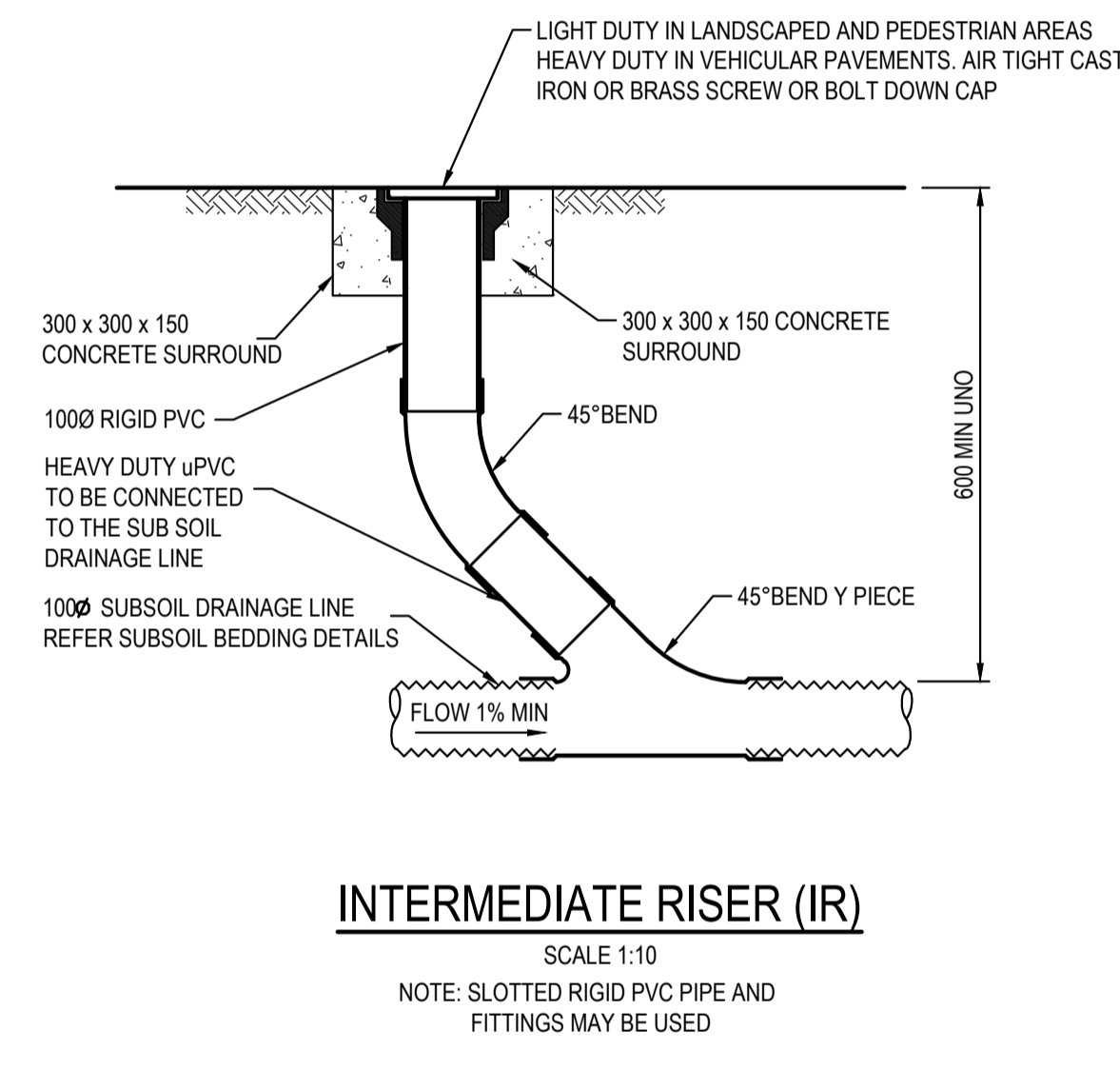
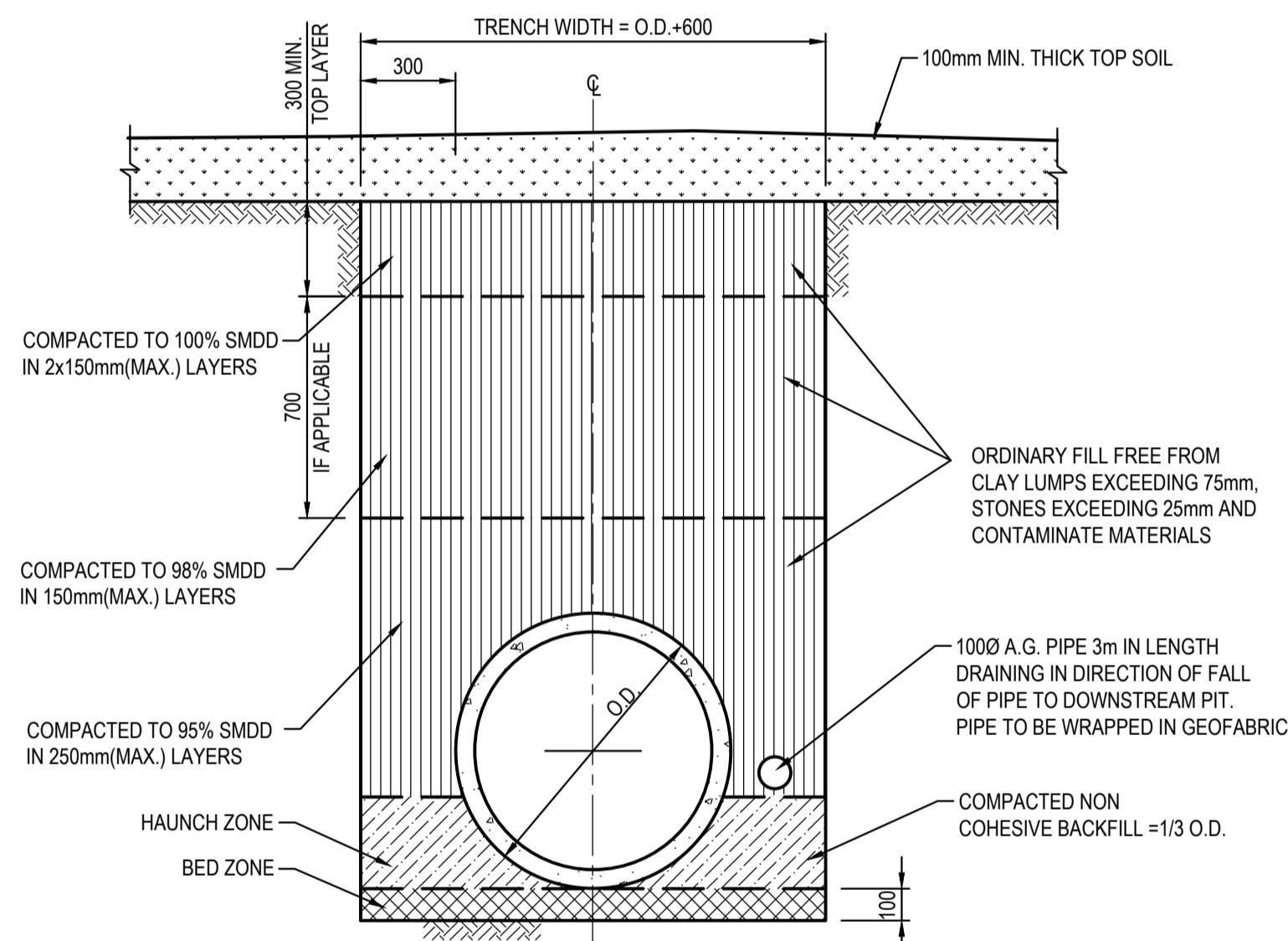
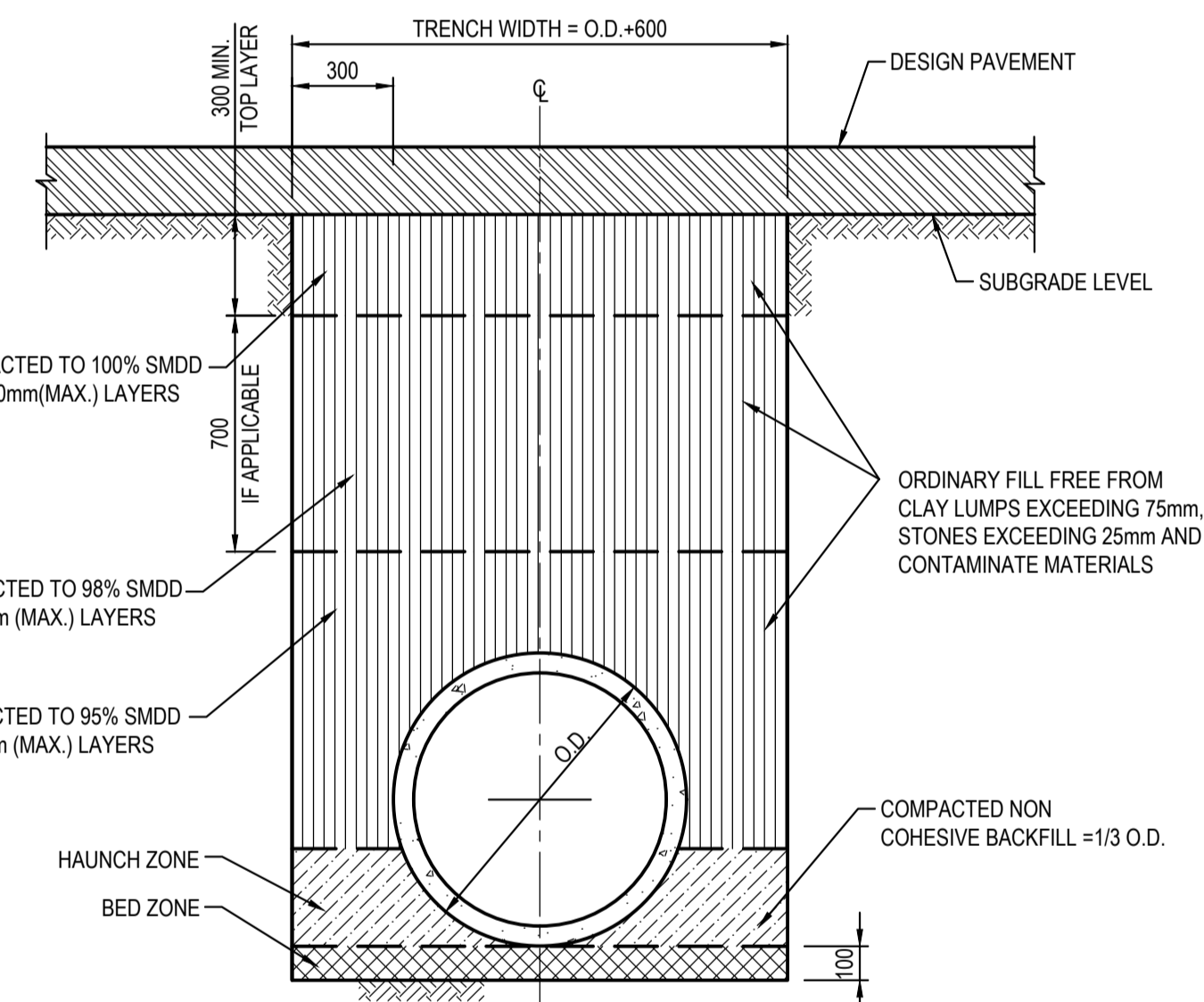
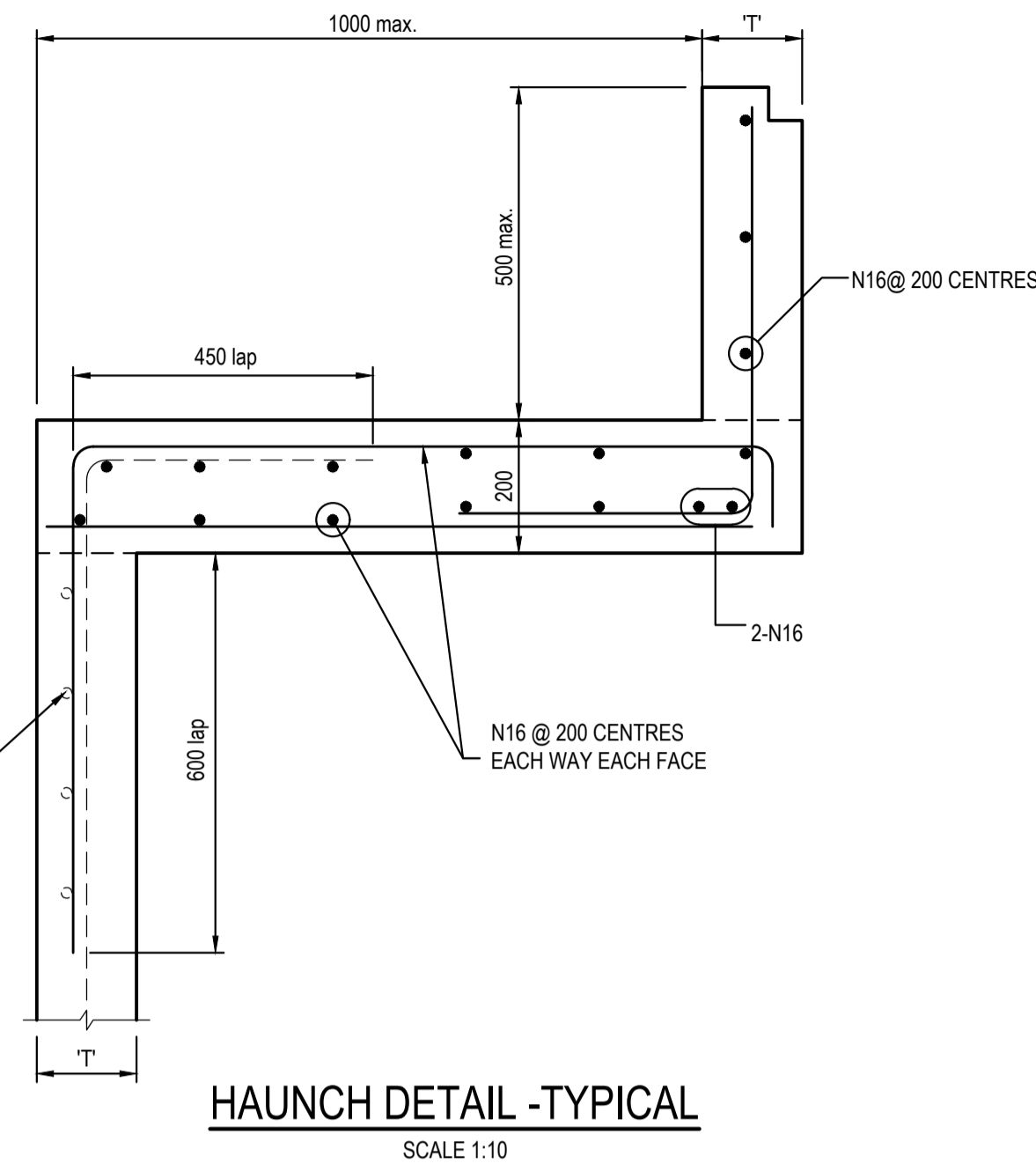
\*A = 600 FOR PIPES UP TO 375 DIA.  
 1 PIT CHAMBER DIMENSIONS FOR PIPES UP TO 600 DIA.

1 PIT CHAMBER FOR PIPES GREATER THAN 600 DIA.

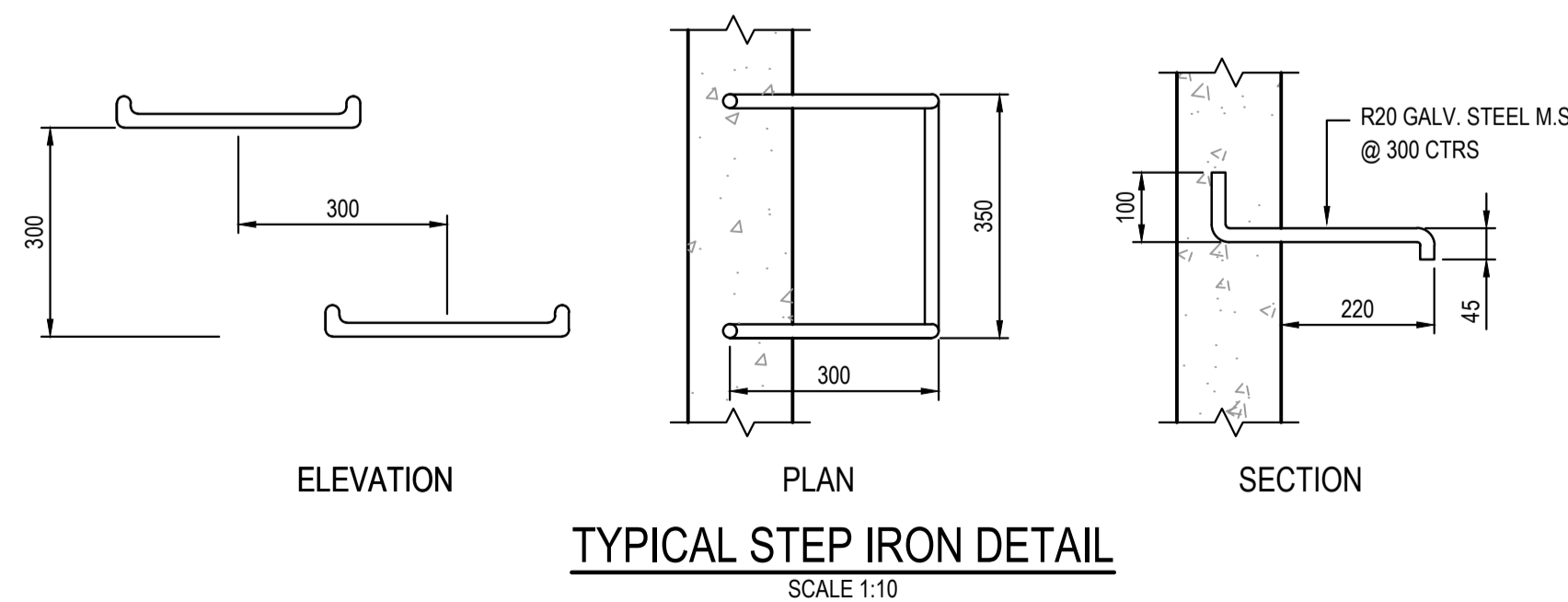
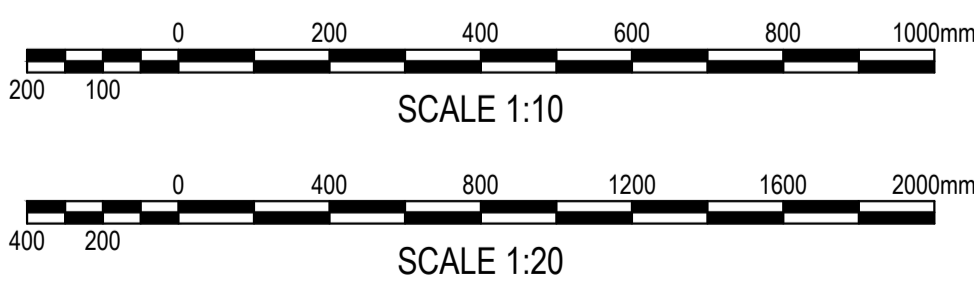
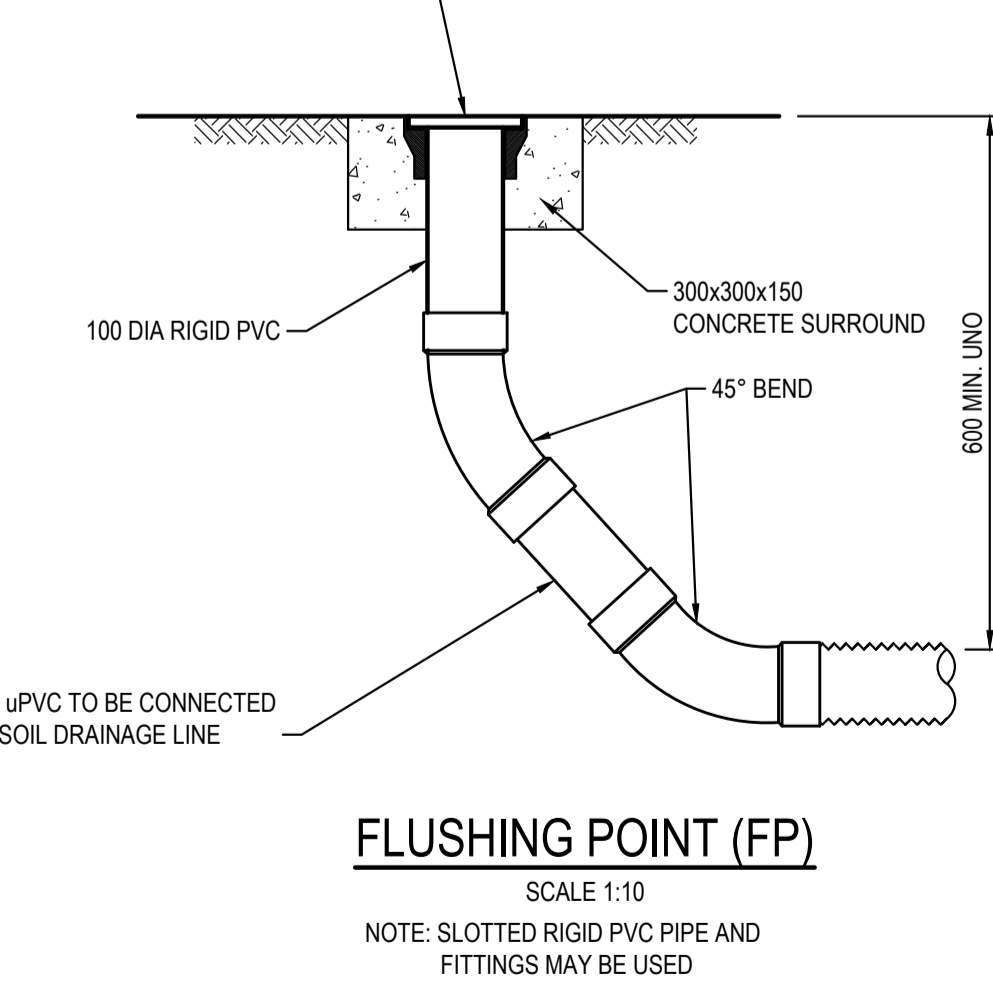
2 PIT SIZE & DEPTH REQUIREMENTS  
 H = 0-900mm - Ax B = 600x600mm  
 H = 900-1200mm - Ax B = 900x600mm  
 H = >1200mm - Ax B = 900x900mm



3 PIT CHAMBER FOR SIDE ENTRY ON SKEW



LIGHT DUTY IN LANDSCAPED AND PEDESTRIAN AREAS HEAVY DUTY IN VEHICULAR PAVEMENTS. AIR TIGHT CAST IRON OR BRASS SCREW OR BOLT DOWN CAP.



PIT LID SCHEDULE

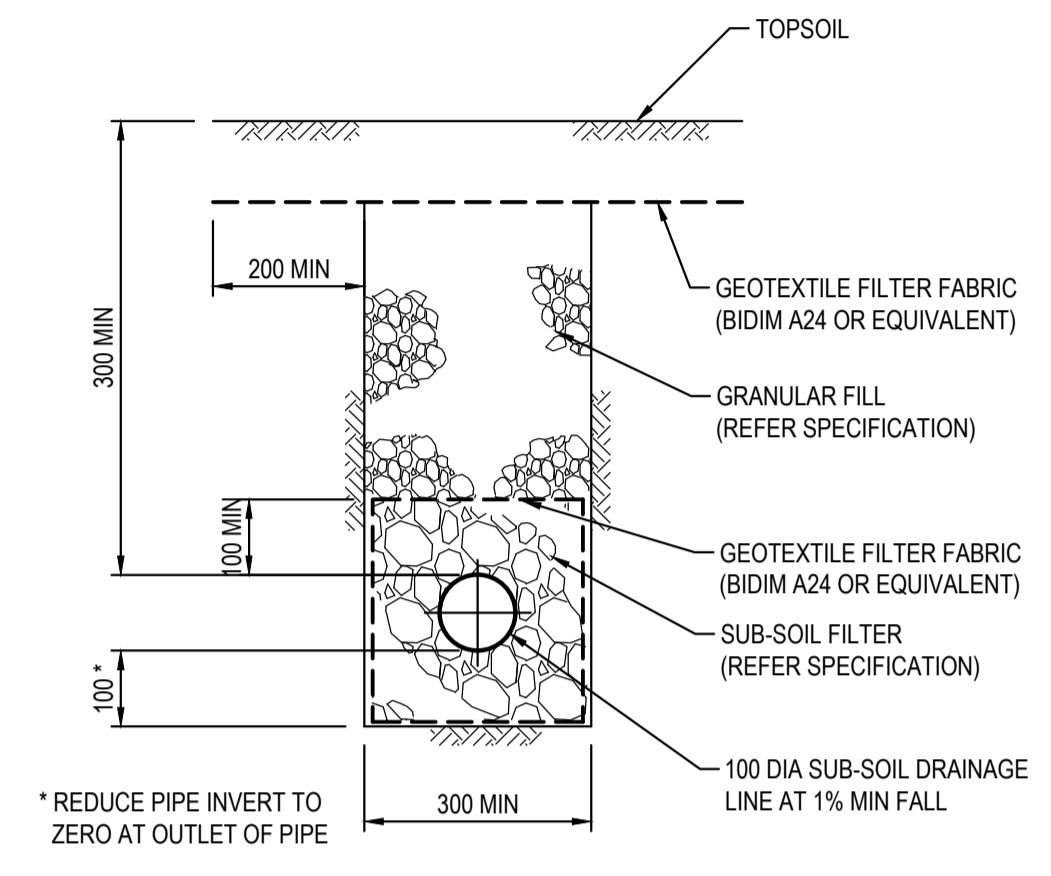
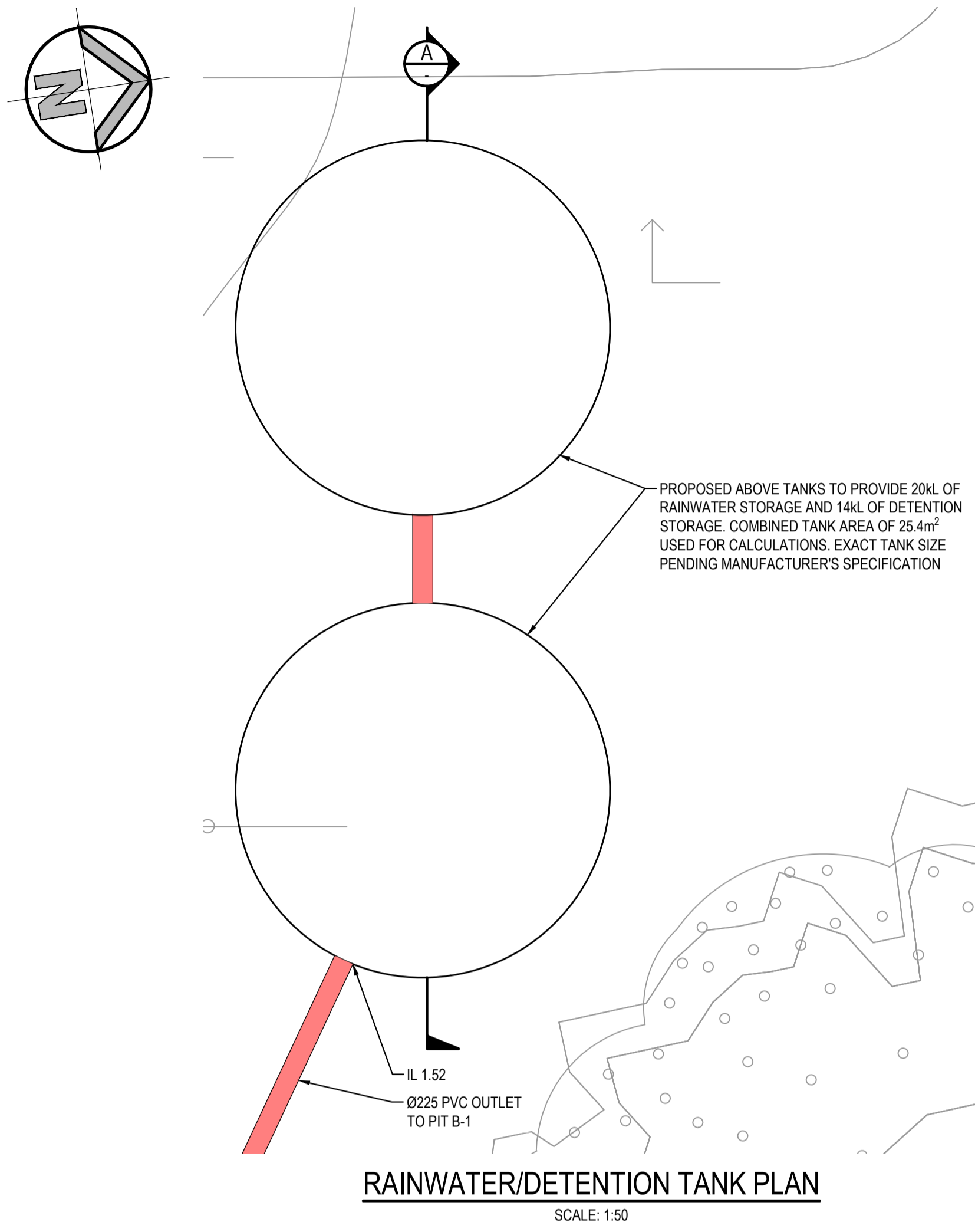
PIT/STRUCTURE NUMBER	DESCRIPTION
A-1	PROPOSED INLET PIT WITH 600x600 HINGED MEDIUM DUTY GRATED LID CLASS "C" IN ACCORDANCE WITH RICHMOND VALLEY COUNCIL'S REQUIREMENTS.
A-2, A-3, A-4, A-7	PROPOSED INLET PIT WITH 900x900 HINGED MEDIUM DUTY GRATED LID CLASS "C" IN ACCORDANCE WITH RICHMOND VALLEY COUNCIL'S REQUIREMENTS.
A-5, A-6	PROPOSED INLET PIT WITH 900x900 HINGED HEAVY DUTY V-GRATE LID CLASS "D" IN ACCORDANCE WITH RICHMOND VALLEY COUNCIL'S REQUIREMENTS.
A-8	PRE CAST HEADWALL

DRAINAGE NOTES:

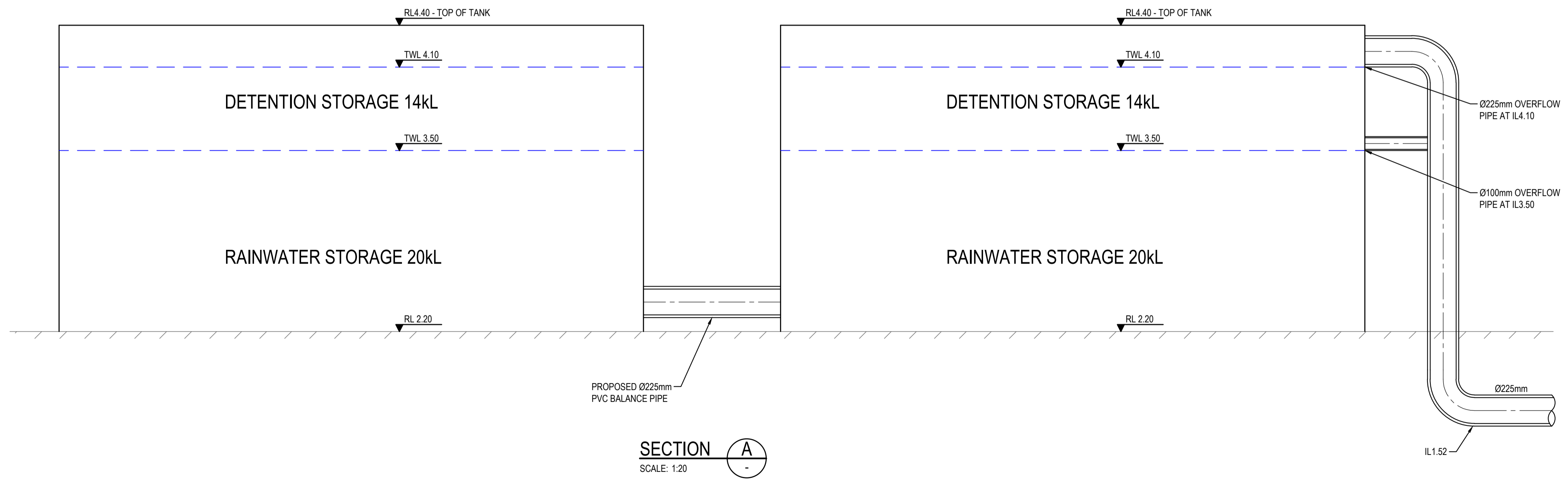
- ALL STORMWATER WORK TO COMPLY WITH AS 3500 PART 3.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE MINIMUM COVER OF 600mm ON ALL PIPES.
- PROTECTION OF PIPES DUE TO LOADS EXCEEDING W7 WHEEL LOAD SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- BEDDING TYPE SHALL BE TYPE H2 FOR RCP. WHERE NECESSARY THE OVERLAY ZONE SHALL BE REDUCED TO ACCOMMODATE PAVEMENT REQUIREMENTS. REFER TO THIS DRAWING FOR DETAILS.
- MINIMUM COVER OVER EXISTING PIPES FOR PROTECTION DURING CONSTRUCTION SHALL BE 800mm.
- NO CONSTRUCTION LOADS SHALL BE APPLIED TO PLASTIC PIPES.
- FINISHED SURFACE LEVELS SHOWN ON LAYOUT PLAN DRGS TAKE PRECEDENCE OVER DESIGN DRAINAGE SURFACE LEVELS.
- ALL PIPES UP TO AND INCLUDING 300 DIA. SHALL BE SOLVENT OR RUBBER RING JOINTED PVC CLASS SH PIPE TO AS1260. ALL OTHER PIPES TO BE RCP USING CLASS 2 RUBBER RING JOINTED PIPE. HARDIES FRC PIPE MAY BE USED IN LIEU OF RCP IF DESIRED IN GROUND. ALL AERIAL PIPES TO BE PVC CLASS SH.
- ALL PITS IN NON TRAFFICABLE AREAS TO BE PREFABRICATED POLYESTER CONCRETE 'POLYCRETE' WITH 'LIGHT DUTY' CLASS B GALV. MILD STEEL GRATING AND FRAME. ALL PITS IN TRAFFICABLE AREAS (CLASS "D" LOADING MAX) TO HAVE 150mm THICK CONCRETE WALLS AND BASE CAST IN-SITU  $f_c=32$  MPa, REINFORCED WITH N12-200 BOTH LOADING WAYS CENTRALLY PLACE. U.N.O. ON SEPARATE DESIGN DRAWINGS IN THIS SET. GALV. MILD STEEL GRATING AND FRAME TO SUIT DESIGN LOADING. PRECAST PITS, RECTANGULAR OR CIRCULAR IN SHAPE, MAY BE USED IN LIEU AND SHALL COMPLY WITH RELEVANT AUSTRALIAN STANDARDS.
- ALL PITS, GRATINGS AND FRAMES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION AND TO BE IN ACCORDANCE WITH AS3500.3 AND AS3996.
- PIT CHAMBER DIMENSIONS ARE TO BE SELECTED TO SATISFY THE FOLLOWING:  
 - PIPE SIZE  
 - DEPTH TO INVERT  
 - SKEW ANGLE  
 REFER TYPICAL PIT CHAMBER DETAILS BELOW  
 IF PIT LID SIZE IS SMALLER THAN THE PIT CHAMBER SIZE THEN THE PIT LID IS TO BE CONSTRUCTED ON THE CORNER OF THE PIT CHAMBER WITH THE STEP IRONS DIRECTLY BELOW. ALTERNATIVELY THE PIT LID TO BE USED, IS TO BE THE SAME SIZE AS THE PIT CHAMBER.
- FOR PIPE SIZES GREATER THAN Ø300mm, PIT FLOOR IS TO BE BENCHED TO FACILITATE FLOW.
- GALVANISED STEP IRONS SHALL BE PROVIDED AT 300 CTS FOR PITS HAVING A DEPTH EXCEEDING 1200mm. SUBSOIL DRAINAGE PIPE SHALL BE PROVIDED IN PIPE TRENCHES ADJACENT TO INLET PIPES. (MINIMUM LENGTH 3m).
- ALL SUBSOIL PIPES SHALL BE 100mm SLOTTED PVC IN A FILTER SOCK, UNO, WITH 3m INSTALLED UPSTREAM OF ALL PITS.
- ALL PIPEWORK SHALL HAVE MINIMUM DIAMETER 100.
- MINIMUM GRADE FOR ROOFWATER DRAINAGE LINES SHALL BE 1%.
- ALL PIPE JUNCTIONS AND TAPER UP TO AND INCLUDING 300 DIA. SHALL BE VIA PURPOSE MADE FITTINGS.
- ALL DRAINAGE TO BE INSTALLED IN ACCORDANCE WITH AS3500, PART 3. TESTING TO BE UNDERTAKEN AND REPORTS PROVIDED TO THE SUPERINTENDENT.
- LOCATION OF THE DIRECT DOWN PIPE CONNECTIONS MAY VARY ON SITE TO SUIT SITE CONDITIONS, WHERE CONNECTION SHOWN ON LONG SECTIONS CHAINAGES ARE INDICATIVE ONLY.
- PITS IN EXCESS OF 1.5m DEEP TO HAVE WALL AND FLOOR THICKNESS INCREASED TO 200mm. REINFORCED WITH N12@200 CTS CENTRALLY PLACED BOTH WAYS THROUGHOUT U.N.O. ON SEPARATE DESIGN DRAWINGS IN THIS SET. IF DEPTH EXCEEDS 5m CONTACT ENGINEER.
- SUBSOIL DRAINAGE LINES FOR LANDSCAPE AREA NOT SHOWN ON THESE DRAWINGS. REFER TO LANDSCAPING DRAWINGS FOR ANY ADDITIONAL SUBSOIL LINES IN LANDSCAPING AREAS THAT ARE NOT SHOWN ON THESE CIVIL DRAWINGS.
- ALL STORMWATER PITS TO HAVE Ø100 uPVC SLOTTED SUBSOIL PIPES CONNECTED TO THEM. THESE SUBSOILS TO EXTEND 3m UPSTREAM OF THE PIT AT A MINIMUM GRADE.

FOR DA ONLY

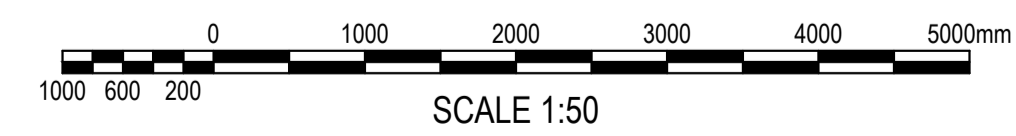
<b>SURVEY INFORMATION</b> SURVEYED BY BEVERIDGE WILLIAMS DATUM: A.H.D. ORIGIN OF LEVELS: PM 43027 RL 2.099	04 ISSUED FOR DA ONLY MB NH 13.02.2024	03 ISSUED FOR DA ONLY AFe NH 19.10.2023	02 ISSUED FOR REF MP NH 18.07.2023	01 ISSUED FOR CO-ORDINATION MP NH 26.06.2023	Client: Suite 2.01, 828 Pacific Highway, Gordon NSW 2072 Architect: PEDAVOLI ARCHITECTS PTY LTD Telephone: +61 2 9417 8400 Facsimile: +61 2 9417 8337 Email: email@hthconsult.com.au Web: www.henryandhymas.com.au H&H Job No: 230889	Project: BROADWATER PUBLIC SCHOOL 9 BYRNES STREET, BROADWATER NSW 2472 Title: STORMWATER MISCELLANEOUS DETAILS AND PIT LID SCHEDULE	Drawn: M.Pereira Design: N.Heazlewood Checked: N.Heazlewood Approved: A.Francis	Original issue date: JUNE Scale: @A1 AS NOTED
	REVISION AMENDMENT DRAWN DESIGNED DATE REVISION AMENDMENT DRAWN DESIGNED DATE				This drawing and design remains the property of Henry & Hymas and may not be copied in whole or in part without the prior written approval of Henry & Hymas.	Drawing number: BRO-CIV-PP-DWG-0200 Revision: 04		



**SUB-SOIL IN LANDSCAPED AREAS**  
SCALE 1:10



**SECTION A-A**  
SCALE 1:20



**FOR DA ONLY**

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
04	ISSUED FOR DA ONLY	AFe	NH	19.10.2023					
03	ISSUED FOR REF	MB	NH	24.07.2023					
02	ISSUED FOR REF	MP	NH	18.07.2023					
01	ISSUED FOR CO-ORDINATION	MP	NH	26.06.2023					

Client: -  
Architect: **PEDAVOLI ARCHITECTS PTY LTD**  
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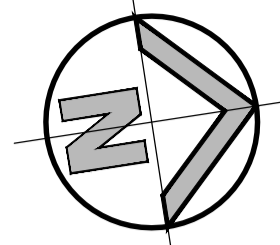
Project: **BROADWATER PUBLIC SCHOOL**  
**9 BYRNES STREET, BROADWATER NSW 2472**  
Title: **RAINWATER/ DETENTION TANK PLAN AND SECTION**

Drawn: M.Pereira	Designed: N.Heazlewood	Original issue date: JUNE
Checked: N.Heazlewood	Approved: A.Francis	Scale: B1
Drawing number: <b>BRO-CIV-PP-DWG-0201</b>		Revision: <b>04</b>









BARAANG DRIVE

TRAVELLERS ARM LANE

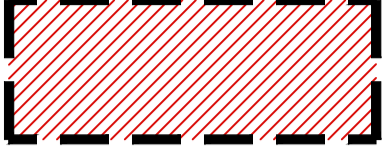

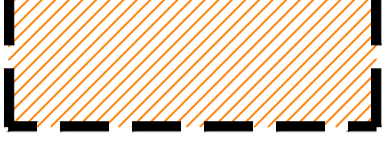
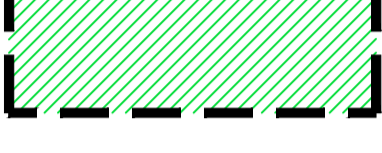

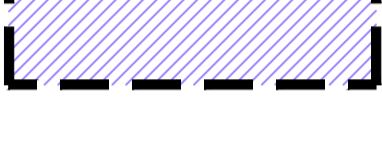
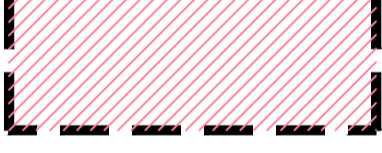
BYPASS

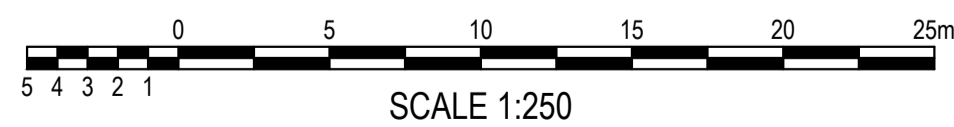
BYPASS

POST-DEVELOPMENT CATCHMENT PLAN

SCALE: 1:250

POST-DEVELOPMENT - TOTAL SITE = 8838m<sup>2</sup>

-  EXISTING HARDSTAND AND LANDSCAPING BYPASSING TO TRAVELLERS ARM LANE  
AREA = 1929m<sup>2</sup>
-  PROPOSED LANDSCAPING DRAINING TO PIT A-1  
AREA = 1125m<sup>2</sup>
-  PROPOSED LANDSCAPING DRAINING TO PIT A-2  
AREA = 709m<sup>2</sup>
-  PROPOSED LANDSCAPING DRAINING TO PIT A-3  
AREA = 1765m<sup>2</sup>
-  PROPOSED HARDSTAND DRAINING TO RWO  
AREA = 174m<sup>2</sup>
-  EXISTING LANDSCAPE DRAINING BYPASSING TO EXISTING SWALE  
AREA = 2034m<sup>2</sup>
-  PROPOSED ROOF AREA DRAINING TO RWT/OSD  
AREA = 1104m<sup>2</sup>



SCALE 1:250

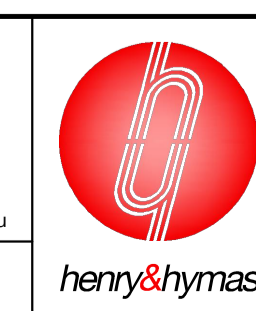
**FOR DA ONLY**

**SURVEY INFORMATION**  
SURVEYED BY  
BEVERIDGE WILLIAMS  
DATUM: A.H.D.  
ORIGIN OF LEVELS: PM 43027 RL 2.099

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
05	ISSUED FOR DA ONLY	MB	NH	13.02.2024					
04	ISSUED FOR DA ONLY	AFe	NH	30.10.2023					
03	ISSUED FOR REF	MB	NH	18.08.2023					
02	ISSUED FOR REF	MP	NH	18.07.2023					
01	ISSUED FOR CO-ORDINATION	MP	NH	26.06.2023					

Client  
-  
Architect  
**PEDAVOLI ARCHITECTS PTY LTD**  
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**DRAWING TO BE PRINTED IN COLOUR**



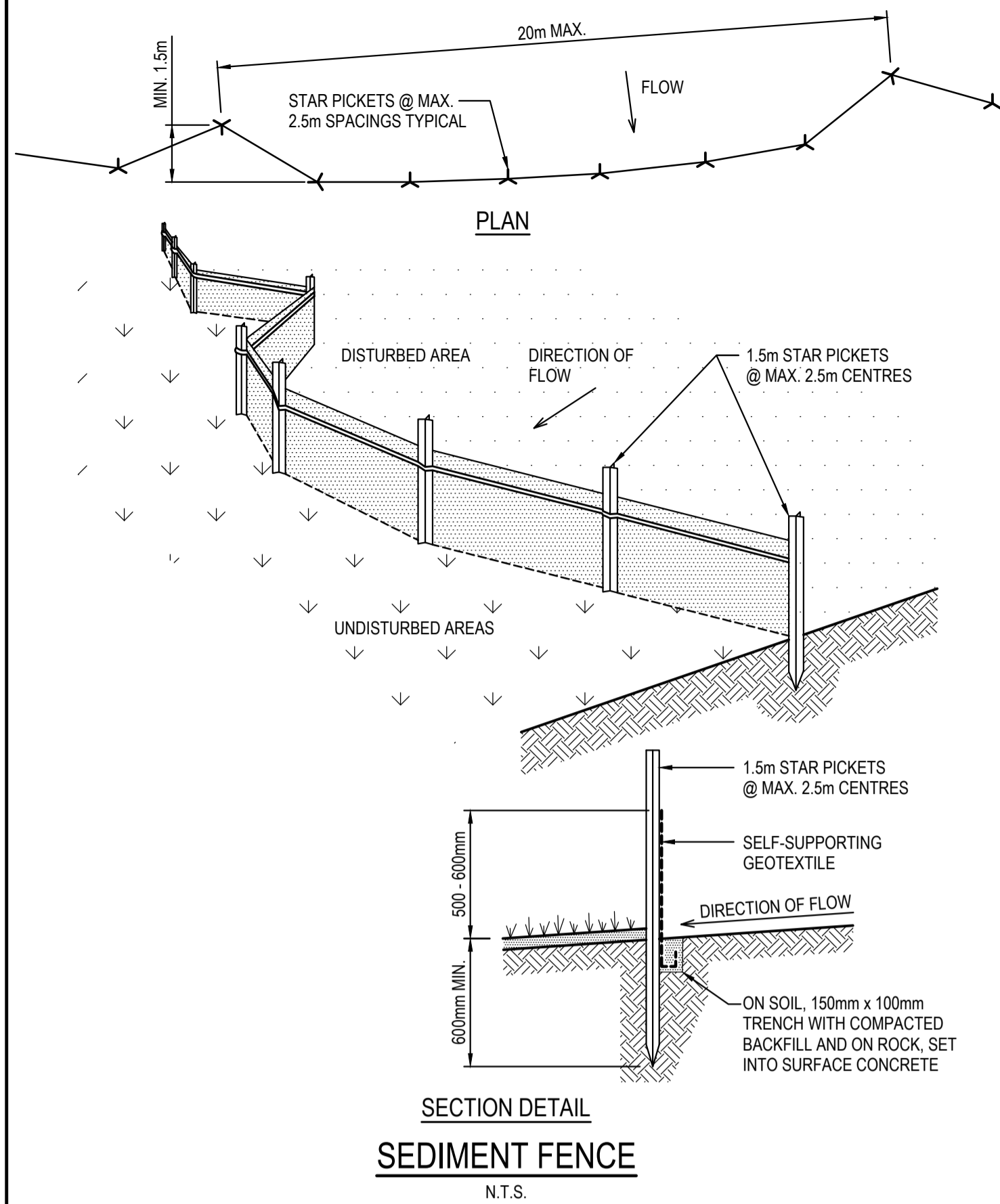
Project  
**BROADWATER PUBLIC SCHOOL**  
9 BYRNES STREET, BROADWATER NSW 2472  
Title  
**POST-DEVELOPMENT CATCHMENT PLAN**

Drawn M.Pereira	Designed N.Heazlewood	Original issue date JUNE
Checked N.Heazlewood	Approved A.Francis	Scale @A1 1:250
Drawing number <b>BRO-CIV-PP-DWG-0251</b>		Revision <b>05</b>



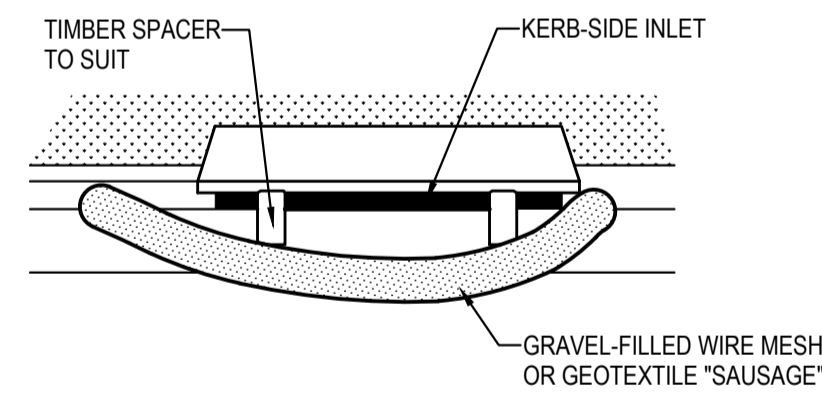






**SEDIMENT FENCE CONSTRUCTION NOTES:**

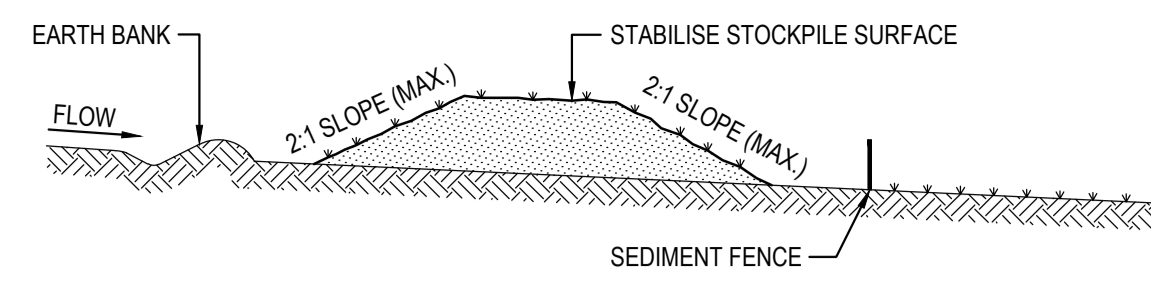
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND @ 2.5m INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



**MESH & GRAVEL INLET FILTER CONSTRUCTION NOTES:**

1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
3. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
4. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
5. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY CAN FIRMLY ABUT EACH OTHER AND SEDIMENT / LADEN WATERS CANNOT PASS BETWEEN.

**MESH & GRAVEL INLET FILTER**  
N.T.S.



**STOCKPILE CONSTRUCTION NOTES:**

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARDOUS AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE PLACED FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED E.S.C.P. OR S.W.M.P. TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.

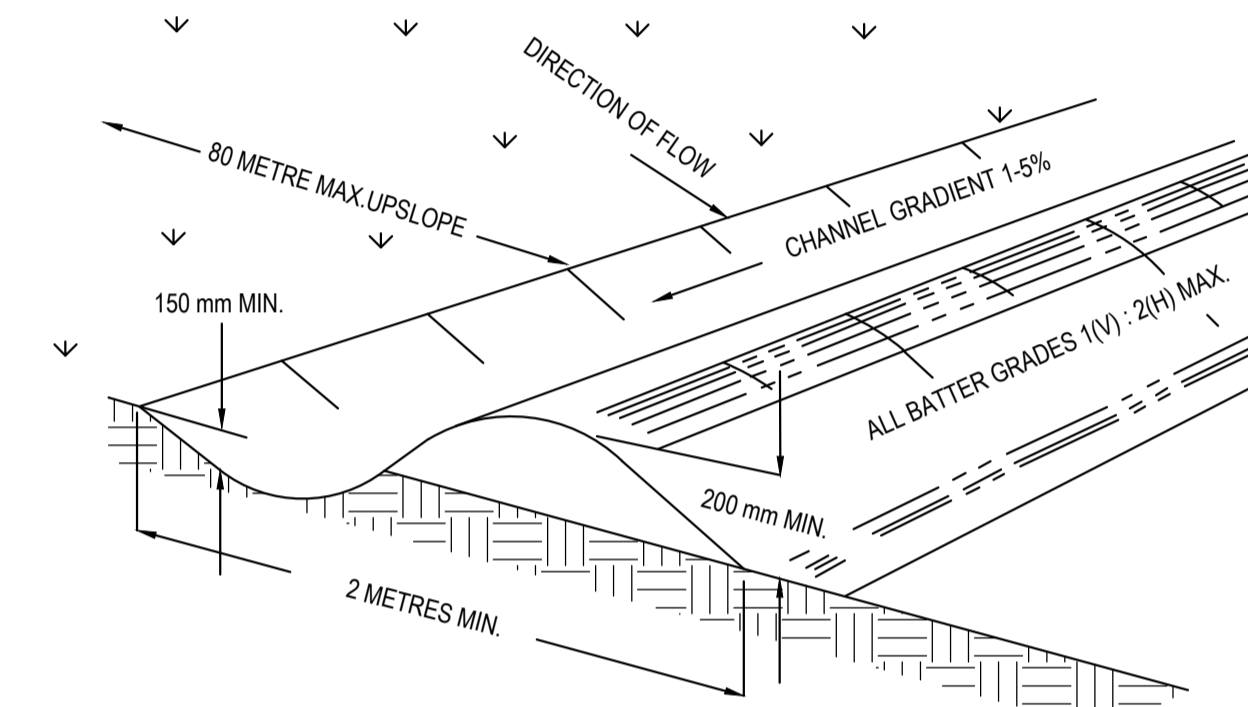
**STOCKPILES**

N.T.S.

**CONSTRUCTION SEQUENCE**

WORKS SHALL BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:

1. INSTALL SEDIMENT FENCING AND CUT DRAINS TO MEET THE REQUIREMENTS OF THE SEDIMENT AND EROSION CONTROL PLAN. WASTE COLLECTION BINS SHALL BE INSTALLED ADJACENT TO SITE OFFICE.
2. CONSTRUCT STABILISED SITE ACCESS IN ACCORDANCE WITH LOCAL COUNCIL'S REQUIREMENTS.
3. REDIRECT CLEAN WATER AROUND THE CONSTRUCTION SITE.
4. INSTALL SEDIMENT CONTROL PROTECTION MEASURES AT ALL NATURAL AND MAN-MADE DRAINAGE STRUCTURES. MAINTAIN UNTIL ALL THE DISTURBED AREAS ARE STABILISED.
5. CLEAR AND STRIP THE WORK AREAS. MINIMISE THE DAMAGE TO THE GRASS AND LOW GROUND COVER OF NON-DISTURBED AREAS.
6. ANY DISTURBED AREAS, OTHER THAN BUILDING PAD AREAS, SHALL IMMEDIATELY BE COVERED WITH SITE TOPSOIL WITHIN 7 DAYS OF CLEARING. BUILDING PAD AREAS SHALL BE COVERED WITH BITUMEN EMULSION AS SPECIFIED.
7. APPLY PERMANENT STABILISATION TO SITE (LANDSCAPING).



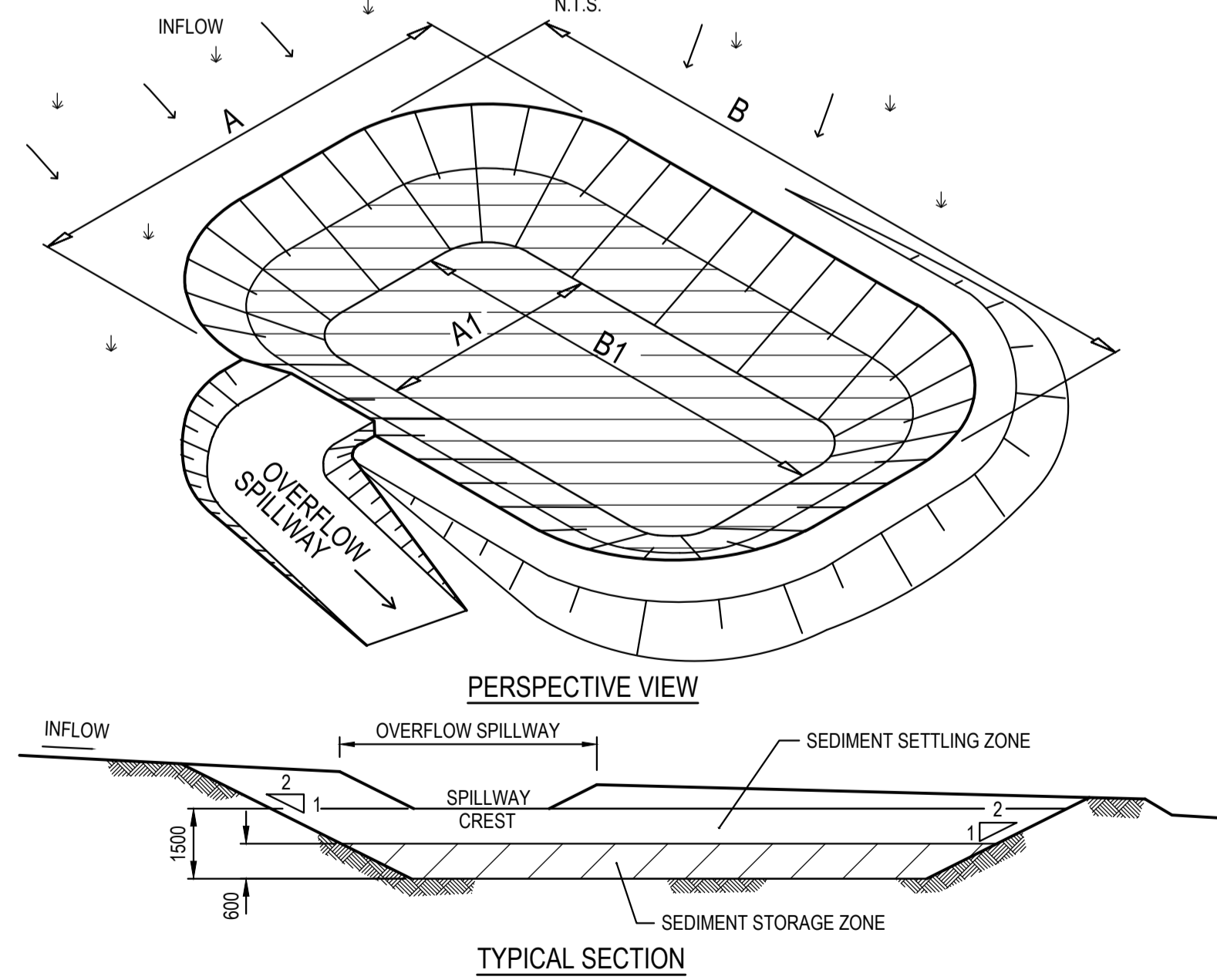
NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAX. UPSLOPE LENGTH IS 80 METRES.

**CATCH DRAIN CONSTRUCTION NOTES:**

1. CONSTRUCT ALONG GRADIENT AS SPECIFIED.
2. MAXIMUM SPACING BETWEEN BANKS SHALL BE 80 METRES.
3. DRAINS TO BE OF PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED.
4. EARTH BANKS TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
5. CONSTRUCTION IS OF A TEMPORARY NATURE AND SHALL BE COMPACTED AT THE END A DAYS WORK OR IMMEDIATELY PRIOR RAIN.
6. ALL OUTLETS FROM DISTURBED LANDS ARE TO FEED INTO SEDIMENT BASIN OR SIMILAR.
7. DISCHARGE RUNOFF COLLECTED FROM UNDISTURBED LANDS ONTO EITHER A STABILISED OR AN UNDISTURBED DISPOSAL AISTE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
8. COMPACT WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.
9. EARTH BANKS TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

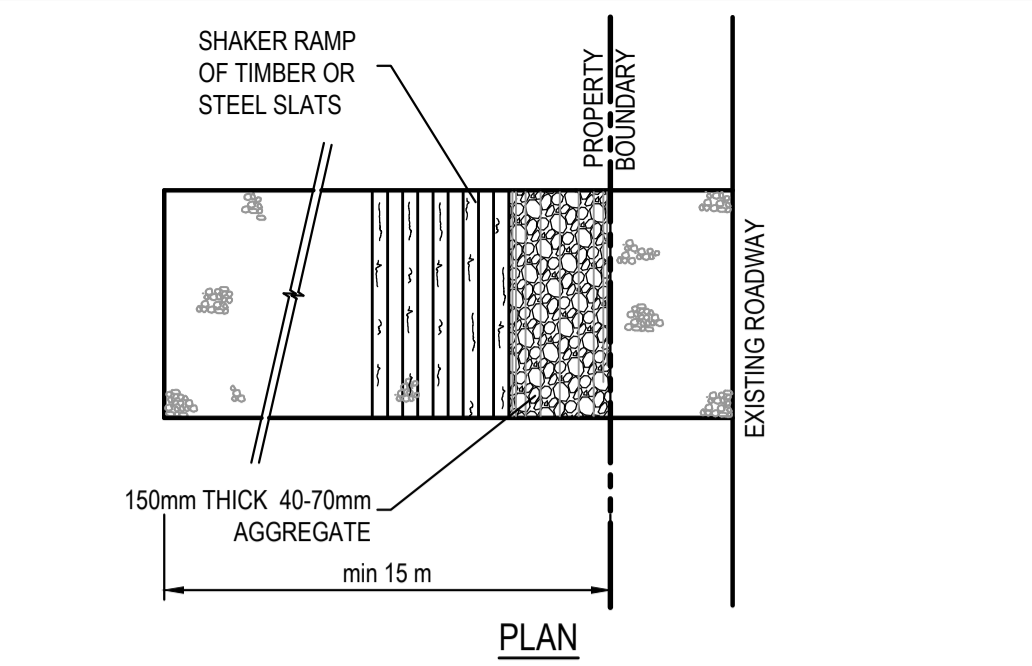
**CATCH DRAINS**

N.T.S.



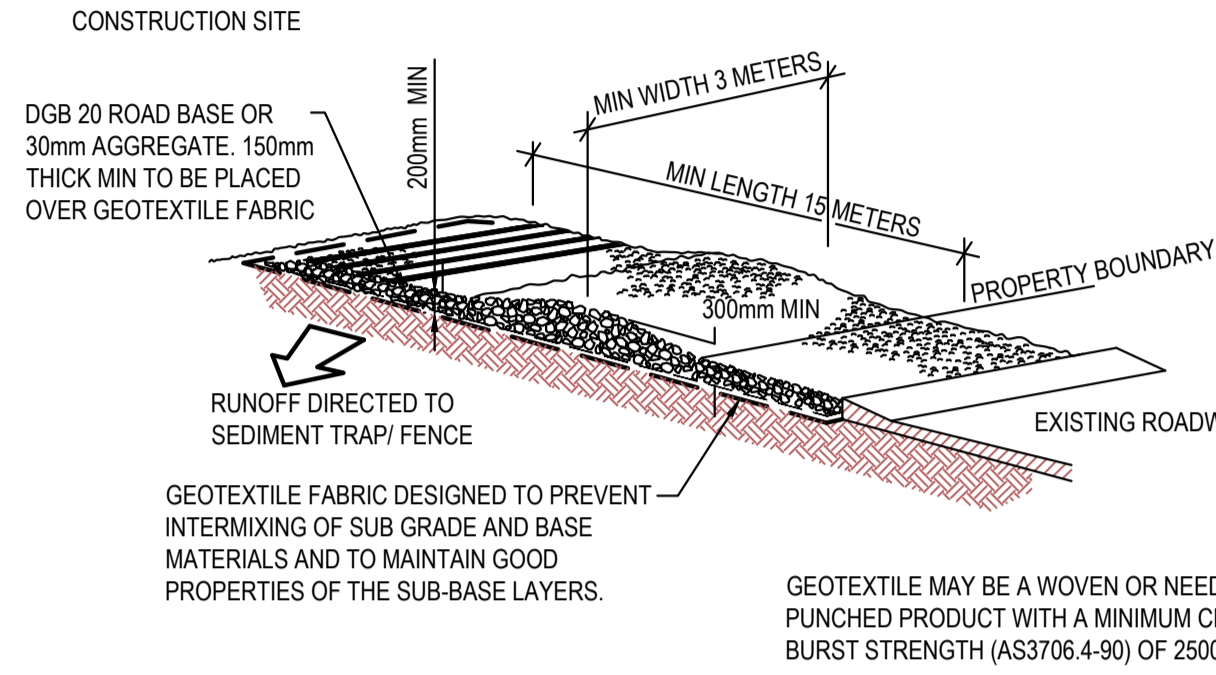
**TYPE 'D' & 'F' SEDIMENTATION BASIN**

N.T.S.



**STABILISED SITE ACCESS WITH SHAKER RAMP**

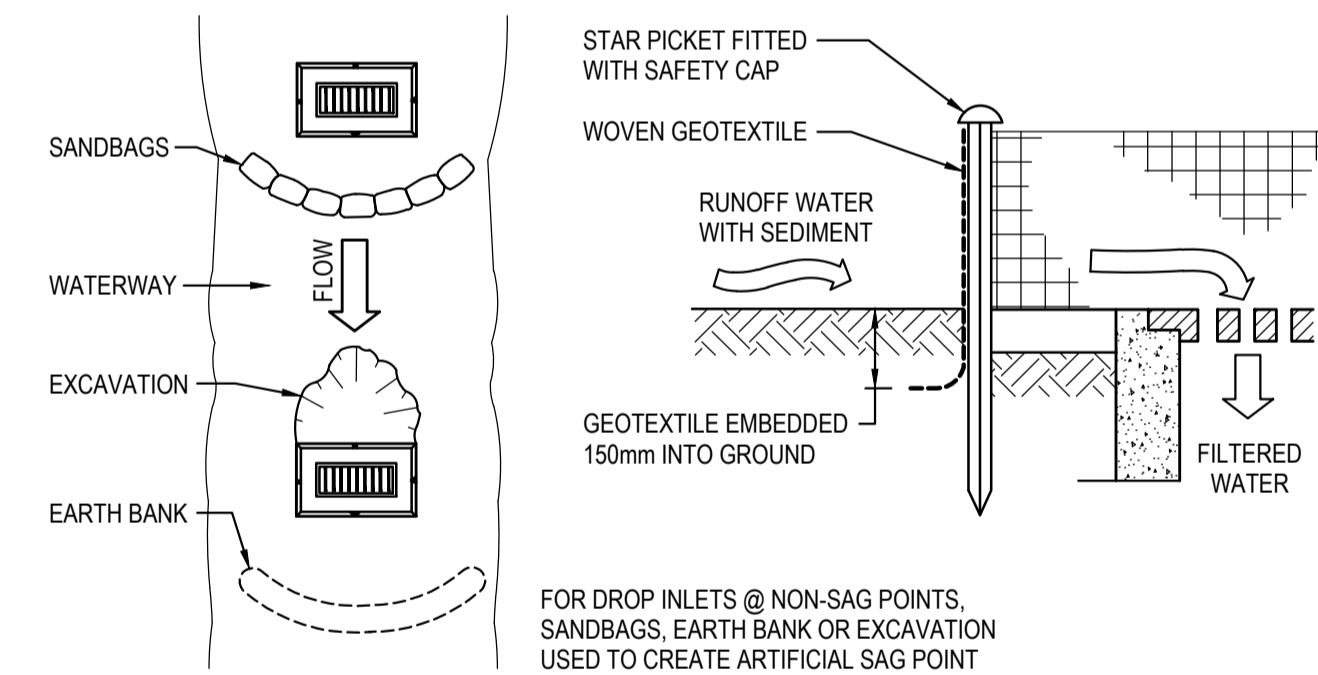
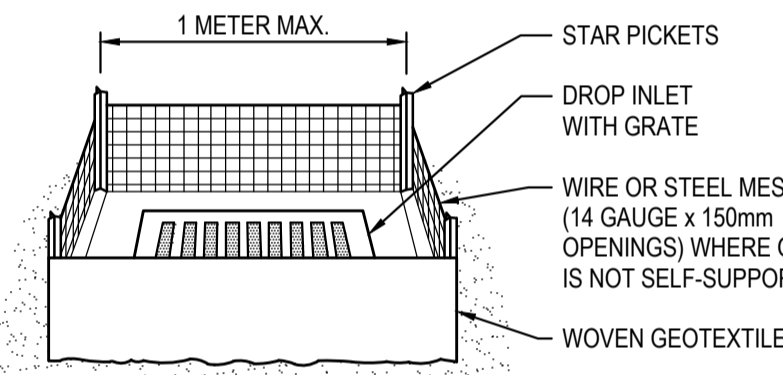
N.T.S.



**STABILISED SITE ACCESS WITH SHAKER RAMP**

N.T.S.

- NOTES:
1. THIS DEVICE IS TO BE LOCATED AT ALL EXITS FROM CONSTRUCTION SITE.
  2. THIS DEVICE IS TO BE REGULARLY CLEANED OF DEPOSITED MATERIAL SO AS TO MAINTAIN A 50mm DEEP SPACE BETWEEN PLANKS.
  3. ANY UNSEALED ROAD BETWEEN THIS DEVICE AND NEAREST ROADWAY IS TO BE TOPPED WITH 100mm THICK 40-70mm SIZE AGGREGATE.
  4. ALTERNATIVELY, THREE(3) PRECAST CONCRETE CATTLE GRIDS (AS MANUFACTURED BY 'HUMES CONCRETE' MAY BE USED. 1, 2 & 3 ABOVE ALSO APPLY.

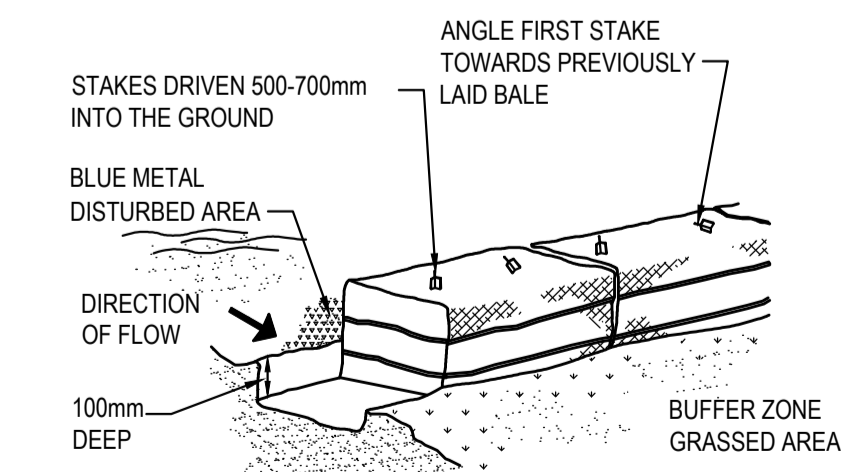


**GEOTEXTILE INLET FILTER CONSTRUCTION NOTES:**

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE.
2. PICKET SPACING TO BE MAXIMUM 1.0m.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILES UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

**GEOTEXTILE INLET FILTER**

N.T.S.



**HAYBALE BARRIERS**

N.T.S.

**SEDIMENT BASIN SIZING**

1. THE SEDIMENT BASIN SHALL BE CONSTRUCTED ON A RATE PER HECTARE BASIS AND HAS BEEN IN ACCORDANCE WITH THE REQUIREMENTS OF THE LANDCOM MANUAL "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", FOR SEDIMENTATION TYPE D SOILS. THE DISTURBED AREA WITHIN THIS CATCHMENT AT ANY ONE TIME SHOULD BE LIMITED TO AN AREA FOR WHICH EACH SEDIMENT BASIN CAN HANDLE. EACH BASIN SHALL BE SIZED IN ACCORDANCE WITH THE TABLE BELOW.

SEDIMENT BASIN SIZING TYPE D SOILS	
VOLUMETRIC RUNOFF COEFFICIENT, CV	0.56 (APPENDIX F - TABLE F2)
75TH PERCENTILE 5 DAY TOTAL RAINFALL DEPTH, R	28.6 mm
CATCHMENT AREA, A	0.32
SETTLING ZONE VOLUME (PER HECTARE) 10 CV A R	51.25 m³
DISTURBED CATCHMENT AREA	0.32
R K L S P C	68.20 m³
SEDIMENT ZONE VOLUME (0.17 A (R K L S P C)/1.3)	50% SETTLING VOL. ADOPT 25.6 m³ PER HECTARE
TOTAL SEDIMENT BASIN VOLUME REQUIRED :	76.88 m³

- \*(LANDCOM MANAGING URBAN STORMWATER MANUAL REFERENCE)
2. THE FOLLOWING DESIGN PARAMETERS HAVE BEEN ASSESSED FOR THE SITE:

CONSTRAINT	VALUE	(SOURCE)*
RAINFALL EROSIONIVITY (R-FACTOR)	4300	APPENDIX B
LENGTH/SLOPE GRADIENT FACTOR, LS	0.2	APPENDIX A - TABLE A1
SOIL ERODIBILITY (K-FACTOR)	0.061	(ASSUMED BASED ON SOIL TYPE)
EROSION CONTROL PRACTICE FACTOR (P-FACTOR)	1.3 (COMPACTED)	APPENDIX A - TABLE A2
COVER FACTOR (C-FACTOR)	1.0 (DURING EARTHWORKS)	APPENDIX A - FIGURE A5
CALCULATED SOIL LOSS, A (RUSLE EQUATION)	68.20	A = R K L S P C
SOIL HYDROLOGIC GROUP	-	(ASSUMED BASED ON SOIL TYPE)
SEDIMENT TYPE	28.6	(ASSUMED BASED ON SOIL TYPE)
75TH PERCENTILE 5-DAY RAINFALL EVENT	29.5 mm (LISSMORE)	TABLE 6.3A

\*(LANDCOM MANAGING URBAN STORMWATER MANUAL REFERENCE)

**BASIN MANAGEMENT**

1. THE CAPTURED STORMWATER IN THE SETTLING ZONE SHOULD BE DRAINED TO MEET THE MINIMUM STORAGE CAPACITY REQUIRED WITHIN A FIVE (5) DAY PERIOD FOLLOWING RAINFALL, PROVIDED THE ACCEPTABLE WATER QUALITY (NFR) AND TURBIDITY HAVE BEEN ACHIEVED.
2. CHEMICAL FLOCCULENT SUCH AS GYPSUM MAY BE DOSED TO AID SETTLING WITHIN 24 HOURS OF CONCLUSION OF EACH STORM. THE APPLIED DOSING RATES SHOULD ACHIEVE THE TARGET QUALITY WITHIN 36 TO 72 HOURS OF THE STORM EVENT.
3. INSPECT THE SEDIMENT BASINS AFTER EACH RAINFALL EVENT AND/OR WEEKLY. ENSURE THAT ALL SEDIMENT IS REMOVED ONCE THE SEDIMENT STORAGE ZONE IS FULL (REFER TO PEGS INSTALLED IN BASINS IN ACCORDANCE WITH THE SWMP). ENSURE THAT OUTLET AND EMERGENCY SPILLWAY WORKS ARE MAINTAINED IN A FULLY OPERATIONAL CONDITION AT ALL TIMES.

SOWING SEASON	SEED MIX
AUTUMN/WINTER	OATS@40kg/ha + JAPANESE MILLET@10kg/ha
SPRING/SUMMER	OATS@20kg/ha + JAPANESE MILLET@20kg/ha

NOTE : THESE PLANT SPECIES ARE FOR TEMPORARY REVEGETATION ONLY. THEY WILL ONLY PROVIDE PROTECTION FROM EROSION FOR SIX MONTHS. WHERE THE LOTS ARE TO BE LEFT UNDEVELOPED FOR A LONGER PERIOD, THE CONTRACTOR SHALL SEEK ADVICE FROM THE SITE SUPERINTENDENT AS TO MORE APPROPRIATE REVEGETATION METHODS.

REVEGETATION IN ACCORDANCE WITH THE ABOVE TABLE WILL BE ENHANCED BY ADDING LIME AT A RATE OF 4kg/TONNE OF TOPSOIL AND 7.5kg/TONNE OF SUBSOIL.

4. THE LONG TERM GROUND COVER FACTORS FOR THE CONSTRUCTION WORKS IS NOT TO EXCEED THE FOLLOWING LIMITS:

LAND	MAXIMUM C-FACTOR	REMARKS
WATERWAYS AND OTHER AREAS OF CONCENTRATED FLOWS, POST CONSTRUCTION	0.05	APPLIES AFTER TEN WORKING DAYS OF COMPLETION OF FORMATION AND BEFORE CONCENTRATED FLOWS ARE APPLIED. FOOT AND VEHICULAR TRAFFIC IS PROHIBITED IN THIS AREA AND 70% GROUND COVER IS REQUIRED.
STOCKPILES, POST CONSTRUCTION	0.10	APPLIES AFTER TEN WORKING DAYS FROM COMPLETION OF FORMATION. 60% GROUND COVER IS REQUIRED.
ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES, DURING CONSTRUCTION.	0.15	APPLIES AFTER 20 DAYS OF INACTIVITY, EVEN THOUGH WORKS MAY BE INCOMPLETE. 50% GROUND COVER IS REQUIRED.

**FOR DA ONLY**

<p><b>SURVEY INFORMATION</b> SURVEYED BY BEVERIDGE WILLIAMS DATUM: A.H.D. ORIGIN OF LEVELS: FM 43027 RL 2.099</p>	03	ISSUED FOR DA ONLY	AF#	NH	19.10.2023	<p>Client -</p> <p>Architect PEDAVOLI ARCHITECTS PTY LTD</p> <p>This drawing and design remains the property of Henry &amp; Hymas and may not be copied in whole or in part without the prior written approval of Henry &amp; Hymas.</p>	<p>Suite 2.01 828 Pacific Highway Gordon NSW 2072</p> <p>Telephone +61 2 9417 8400 Facsimile +61 2 9417 8337 Email email@hnhconsult.com.au Web www.henryandhymas.com.au</p>		<p>Project BROADWATER PUBLIC SCHOOL 9 BYRNES STREET, BROADWATER NSW 2472</p>	Drawn M.Pereira	Designed N.Heazlewood	Original issue date JUNE
	02	ISSUED FOR REF	MP	NH	18.07.2023					Checked N.Heazlewood	Approved A.Francis	Scale @A1 NTS
01	ISSUED FOR CO-ORDINATION	MP	NH	26.06.2023	Revision number	Revision	<p>DRAWING NUMBER BRO-CIV-PP-DWG-0910</p>		<p>03</p>			