NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

2. PERMANENT REINSTATEMENT TO BE MEASURED SEPERATELY.

3. GRADE ST4 CONCRETE AS BACKFILL TO TRENCHES TO BE SEMI-DRY MIX COMPACTED. BY MEANS OF A VIBRATING PLATE COMPACTOR/TRENCH RAMMER IN LAYERS NOT GREATER THAN 200mm.

4. SELECTED BACKFILL TO BE COMPACTED BY MEANS OF A VIBRATING PLATE COMPACTOR/TRENCH RAMMER IN LAYERS NOT GREATER THAN 200mm.

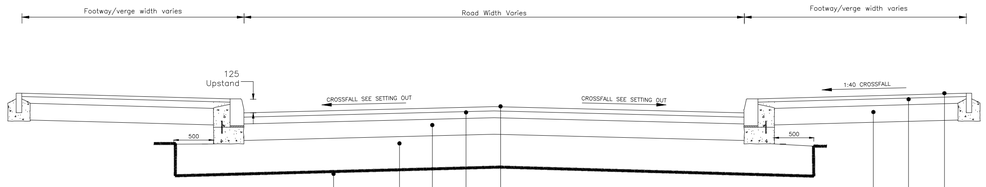
5. THE EDGE OF ALL TRENCHES TO BE SAW CUT, MINIMUM DEPTH OF 40mm.

6. ALL DUCTS TO BE 100mmØ, AND ARE TO BE COMPLETE WITH 6mmØ POLYPROPELENE DRAWROPE SECURED AT BOTH ENDS.

7. THE DUCTING SHALL BE H.D.P.E (5mm WALL THICKNESS) AND SHALL BE CLEARLY MARKED(STREET LIGHTING/TRAFFIC SIGNALS) AS APPROPRIATE; OR FLEXIBLE WITH A RIBBED M.D.P.E.OUTER PROFILE AND A SMOOTH L.D.P.E. INNER BORE.

8. THE DUCTING SHALL CONFORM TO A DENSITY OF 0.9/cm3 DIN53479 WITH A BREAKINGPOINT OF 23-30N/mm2 DIN53455. THE DUCTING SHALL BE COMPATIBLE WITH THE APPROVED ACCESS CHAMBERS PRE-TREPANED KNOCKOUT. WHERE THE DUCTS NEED TO BE JOINED A MANUFACTURER APPROVED CONNECTOR MUST BE USED AND APPROVED BY THE OVERSEEING ORGANISATION.

TYPICAL CARRIAGEWAY CONSTRUCTION DETAIL



FULL DEPTH CARRIAGEWAY CONSTRUCTION-(NO LIMESTONE AGGREGATE TO BE USED IN SURFACE COURSES OR ANY SURFACES TO BE TEMPORARILY TRAFFICKED). ALL MATERIALS TO BE LAID AND TRANSPORTED IN ACCORDANCE WITH THE SHW. BITUMINOUS SPRAY TO BE APPLIED IN ACCORDANCE WITH CLAUSE 920 OF THE SHW.

SURFACE: 40MM THICK HRA 35/14 SURF 40/60 DES 20MM PRECOATED CHIPPINGS PSV MIN 60 TO BS EN 13108.

BINDER: 60MM THICK AC 20 DENSE BIN 40/60 REC TO BS EN 13108.

BASE: 150MM THICK AC32 BASE 40/60 REC TO BS EN 13108.

SUB BASE: MIN 150MM THICK SUB-BASE (SUBJECT TO ON-SITE CBR RESULTS-PLEASE REFER TO TABLE ON D004) IN TYPE 1 GRANULAR MATERIAL, LAID AND COMPACTED TO THE SPECIFICATION FOR HIGHWAY WORKS CLAUSES 701, 801, & 803.

CAPPING: REQUIRED CAPPING DEPTH SUBJECT TO ON-SITE CBR TEST RESULTS. FOR ALL CAPPING DETAILS PLEASE REFER TO THE TABLE PROVIDED ON THE STANDARD DETAILS PLAN AND THE DMRB FOR FURTHER GUIDANCE. CBR TO BE ESTABLISHED ON SITE PRIOR TO STARTING WORKS. CONTRACTOR TO REFER RESULTS TO A REPRESENTATIVE OF THE LOCAL AUTHORITY AND THE DESIGN MANUAL FOR ROADS AND BRIDGES VOLUME 7, SECTION 2, PART 3 CHAPTER 3 FOR FURTHER GUIDANCE ON SUB-BASE CAPPING RELATIONSHIP. APPROPRIATE TERRAM GEOTEXTILE MEMBRANE TO BE LAID BENEATH CAPPING LAYER TO MANUFACTURER'S PROPRIETARY REQUIREMENTS.

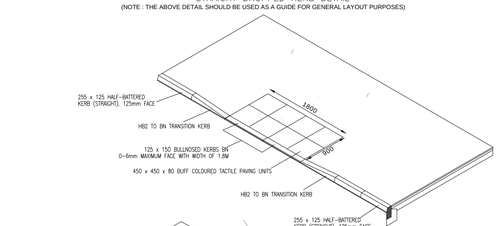
SURFACE COURSE:– 20MM THICK AC6 DENSE SURF 100/150 PEN. SUPPLIED AND LAID IN ACCORDANCE WITH THE SHW AND EN13108

BINDER COURSE:–60MM THICK AC 20 DENSE BIN.SUPPLIED AND LAID IN ACCORDANCE WITH THE SHW AND EN13108.

SUB BASE:– 160MM THICK TYPE 1 GRANULAR SUB BASE 225MM AT VEHICLE CROSSINGS. SUPPLIED AND LAID IN ACCORDANCE WITH THE SHW.

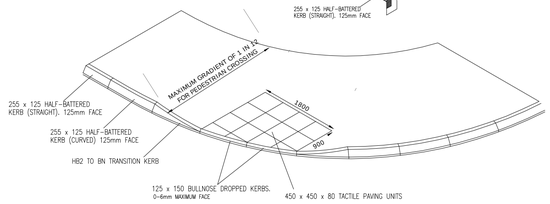
STRAIGHT DROPPED KERB DETAIL

(NOTE : THE ABOVE DETAIL SHOULD BE USED AS A GUIDE FOR GENERAL LAYOUT PURPOSES)



RADIAL DROPPED KERB DETAIL

(NOTE : THE ABOVE DETAIL SHOULD BE USED AS A GUIDE FOR GENERAL LAYOUT PURPOSES)



CAPPING AND SUB-BASE THICKNESS DESIGN

TABLE 1 (TO IAN 73/06 REV 1)

CAPPING LAYER AND SUB-BASE OPTIONS
RESTRICTED FOUNDATION DESIGN: FOUNDATION CLASS 2

CBR%	OPTION A			OPTION B
MIN.	SUB-BASE &		CAPPING	SUB-BASE ONLY
2.5%	350	&	250	450
3%	320	&	240	420
5%	240	&	210	330
7%	210	&	200	290
9%	190	&	180	260
11%	170	&	170	240
13%	160	&	160	220
15%+	150	&	150	200

SITE TESTS

CBR TESTS SHALL BE UNDERTAKEN ON SITE BY THE CONTRACTOR TO DETERMINE THE CBR VALUE AT FORMATION LEVEL AND SUB BASE CAPPING DEPTHS CONFIRMED WITH LA ENGINEER AND FIG. 3.1 OF THE DEPARTMENT OF TRANSPORT DESIGN CAPPING DEPTHS SHALL BE LAID IN ACCORDANCE WITH MANUAL HD 26/06.

NOTES

1. ALL ADOPTABLE SEWERS AND ASSOCIATED WORKS ARE TO COMPLY FULLY WITH "SEWERS FOR ADOPTION" 7TH EDITION. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE ON-SITE DRAWINGS PRIOR TO UNDERTAKING ANY WORKS AND ANY DISCREPANCIES WITH BOUNDARIES, FENCELINES, EARTHWORKS OR OTHERWISE REPORTED IMMEDIATELY TO THE ENGINEER PRIOR TO WORKS COMMENCING.

2. ALL HIGHWAY AND DRAINAGE WORKS TO BE TO ADOPTABLE STANDARDS AND SHALL COMPLY FULLY WITH THE LOCAL AUTHORITY SPECIFICATION, APPROVED STANDARD DETAILS AND THE RELEVANT SECTIONS OF THE DESIGN MANUAL FOR ROADS AND BRIDGES, SPECIFICATION FOR HIGHWAY WORKS AND BRITISH STANDARDS. CONTRACTOR TO ENSURE POSITIVE DRAINAGE TO ALL GULLIES PRIOR TO UNDERTAKING ANY PAVEMENT WORKS.

3. ANY PRIVATE WORKS ARE TO COMPLY FULLY WITH THE LATEST EDITIONS OF THE BUILDING REGULATIONS

4. ALL EXISTING STATIONS, INVERT LEVELS AND DRAINAGE NETWORK TO BE CHECKED BY THE CONTRACTOR AT THE START OF WORKS AND ANY DISCREPANCIES NOTIFIED TO THE ENGINEER. ALL LEVELS ARE BASED ON TOPOGRAPHICAL SURVEY INFORMATION PROVIDED BY OTHERS. ANY DISCREPANCIES BETWEEN THIS AND OTHER DRAWINGS TO BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION

5. ALL MATERIALS TO BEAR THE RELEVANT B.S.KITEMARK AND COMPLY FULLY WITH THE SPECIFICATIONS. ALL MATERIALS TO BE AGREED WITH THE OVERSEEING LOCAL AUTHORITY REPRESENTATIVE PRIOR TO ORDERING. ALL CONCRETE & CONCRETE PRODUCTS MUST USE SULPHATE RESISTANT CEMENT (UNLESS THE SITE INVESTIGATION REPORT PROVES THAT SULPHATE ATTACK FROM SOILS AND GROUNDWATER WILL NOT OCCUR)

6. ALL STATUTORY CONSENTS, OPENING NOTICES ETC. AS REQUIRED UNDER HIGHWAYS ACTS AND WATER INDUSTRIES ACTS,, ARE TO BE OBTAINED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF THE WORKS (UNLESS OTHERWISE STATED). ALL WORKS ARE TO BE INSPECTED BY L.A., NHBC OR STATUTORY AUTHORITY AS APPLICABLE.

7. CONTRACTOR TO MAKE ADVANCE ALLOWANCE FOR THE MANAGEMENT AND COORDINATION OF STATUTORY UNDERTAKERS DIVERSIONS WITHIN THEIR PROGRAMME OF WORKS. PRESENCE OF STATUTORY UNDERTAKERS EQUIPMENT IN THE HIGHWAY SHOULD BE VERIFIED BY THE CONTRACTOR ON SITE PRIOR TO STARTING ANY WORKS. THE LOCATION OF STATUTORY PLANT SHOWN ON ANY PLANS IS INDICATIVE ONLY AND SHOULD NOT BE RELIED UPON FOR THE LOCATION OF ANY PIPEWORK OR CABLING. THE CONTRACTOR SHOULD CONFIRM THE LOCATION OF ALL STATS PLANT BY HAND DUG TRIAL TRENCHES PRIOR TO COMMENCING ANY WORKS. ALLOWANCE FOR THE PRESENCE OF ALL STATS APPROPRIATE PROTECTION / DIVERSION MEASURES (INCORPORATING SPLIT DUCT AND 150MM CONCRETE SURROUND OR SIMILAR STATUTORY APPROVED METHOD) IS TO BE PUT IN PLACE BY THE CONTRACTOR (UNLESS STATED OTHERWISE) WHERE STATS EQUIPMENT ARE FOUND TO BE WITHIN THE AREA OF HIGHWAY WORKS.

8. PRIOR TO ORDERING THE CONTRACTOR IS TO AGREE ALL SIGN POST/LIGHTING COLUMN MATERIALS AND FINISHES WITH THE LOCAL AUTHORITY. ALL SIGNS TO COMPLY WITH BS EN 12899:2007 AND ITS NATIONAL ANNEX. TYPE OF POSTS, FINISHES AND LIGHTING UNITS/COLUMNS TO BE AGREED WITH LA STREETLIGHTING ENGINEER PRIOR TO ORDERING. CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE PROVISION OF ALL REQUIRED EQUIPMENT AND ELECTRICAL FEEDS TO LIGHTING AND ANY SIGNALS PRIOR TO WORKS COMMENCING, CONTRACTOR TO MAKE ALLOWANCE FOR ANY LEAD-INS WITHIN THEIR PROGRAMME.

9. ALL ROADMARKINGS TO BE LAID IN ACCORDANCE WITH THE REQUIREMENTS OF THE TRAFFIC SIGNS MANUAL CHAPTER 5, TRAFFIC SIGNS REGULATIONS AND GENERAL DIRECTIONS. ROADMARKING MATERIALS, LAYING AND PERFORMANCE TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF BS EN 1436.

10. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL ADVANCE NOTICES ARE IN PLACE AND TRAFFIC MANAGEMENT AGREED FOR THE WORKS PRIOR TO COMMENCING. THE CONTRACTOR IS TO MAKE ALLOWANCE FOR THE ADVANCE PROVISION OF ALL ELECTRICAL WORKS AND EQUIPMENT FOR SIGNALS AND STREETLIGHTING WITHIN THEIR PROGRAMME OF WORKS

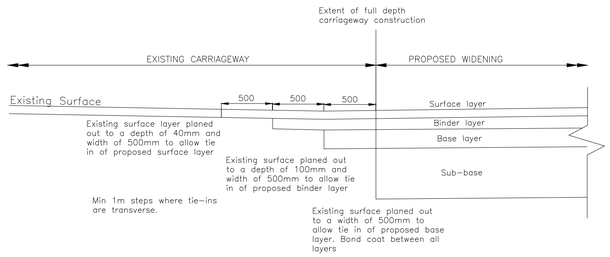
C.D.M. REGULATIONS 2015

IN LINE WITH THE ABOVE REGULATIONS WE ARE OBLIGED TO INFORM THE CLIENT OF THE RISKS THAT MAY BE ENCOUNTERED IN THE CONSTRUCTION OF THESE WORKS. WHEREVER POSSIBLE RISKS HAVE BEEN ELIMINATED FROM THE DESIGN, HOWEVER DUE TO THE VERY NATURE OF THIS TYPE OF WORK IT IS NOT POSSIBLE TO REMOVE ALL THE RISKS FROM THE DESIGN. WE WOULD ALSO RESPECTFULLY REMIND THE CLIENT OF HIS OBLIGATIONS TO TAKE ALL REASONABLE STEPS IN ENSURING THAT ONLY COMPETENT CONTRACTORS WHO HAVE A VALID SAFETY POLICY ARE EMPLOYED. THEY SHOULD ALSO PROVIDE SATISFACTORY RESPONSES AT TENDER STAGE AS TO THE MANNER IN WHICH THEY WILL DEAL WITH THE ELEMENTS OF RISK INVOLVED IN THIS TYPE OF WORK AND IN PARTICULAR THOSE HIGHLIGHTED BY CROFT BELOW:-

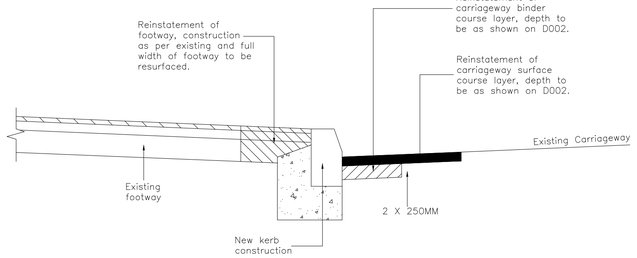
1. TRENCH EXCAVATIONS IN EXCESS OF 1.2M DEEP.
2. GUARDING TO EDGES OF EXCAVATIONS TO PREVENT PEOPLE, MATERIALS AND VEHICLES FALLING INTO EXCAVATION.
3. GUARDING OF EXCAVATIONS OUTSIDE WORKING HOURS TO PREVENT UNAUTHORISED ACCESS.
4. UNDERMINING TO ADJACENT ROADS OR STRUCTURES.
5. CONFINED SPACE OPERATIONS.
6. DEALING WITH EXISTING SERVICES.
7. TRAFFIC MANAGEMENT ON EXISTING HIGHWAYS AND PROTECTION OF SITE PERSONNEL AND MEMBERS OF THE PUBLIC.
8. PROCEDURE TO BE FOLLOWED IN EVENT OF ACCIDENT OR EMERGENCY.
9. METHOD OF WORKING WHERE CONTAMINATED GROUND IS PRESENT ON SITE.
10. CONFIRMATION WILL BE REQUIRED THAT ALL OPERATIVES ARE ADEQUATELY TRAINED, COPIES OF RELEVANT TRAINING CERTIFICATES TO BE SUPPLIED.
11. ANY CONSTRUCTION PERSONNEL, INCLUDING OPERATIVES INTENDING TO CONSTRUCT THE DESIGNS SHOWN ON THIS DRAWING SHOULD ENSURE THAT THEY HAVE BEEN REGULARLY AND THOROUGHLY BRIEFED BY THE PRINCIPAL CONTRACTOR ON ALL HEALTH AND SAFETY MATTERS AND HAVE HAD SIGHT OF:

I) THE FULL DESIGNERS AND CONTRACTORS RISK ASSESSMENTS AND RISK REGISTERS.
II) THE DEVELOPED CONSTRUCTION HEALTH AND SAFETY PLAN
III) THE CONTRACTORS CONSTRUCTION METHOD STATEMENTS.

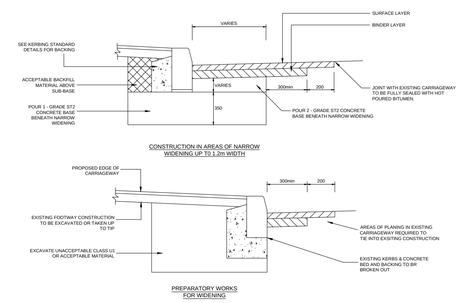
THE ABOVE LIST IS BY NO MEANS EXHAUSTIVE BUT IT DOES HIGHLIGHT OPERATIONS THAT PRESENT A RISK TO CONTRACTORS AND THE GENERAL PUBLIC.



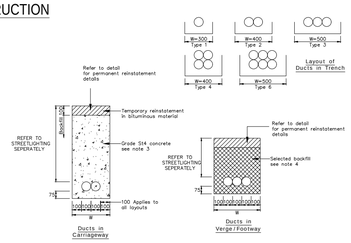
TIE IN CONSTRUCTION



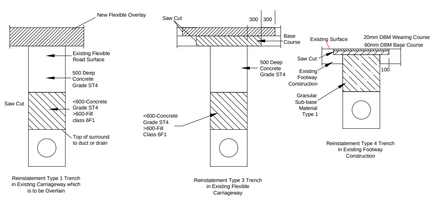
KERB RENEWAL / CARRIAGEWAY REINSTATEMENT



CARRIAGEWAY NARROW WIDENING

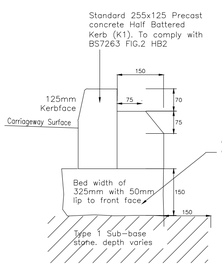


DUCT CROSSING DETAILS-FOR ALL DUCT DETAILS RELATING TO STREETLIGHTING REFER TO LIGHTING DESIGNS SEPARATELY



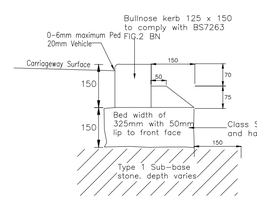
TRENCH REINSTATEMENT

TYPE OF KERB AND THEIR DESIGNATIONS			
TYPE OF KERB	DESIGNATION	FIG Nr.	SIZE
Kerbs:			
Bullnosed	BN	K.1a	125 x 150
45° Splayed	SP	K.1b	125 x 255
Half Battered	HB 1	K.1c	150 x 305
Half Battered	HB 2	K.1d	125 x 255
Half Battered	HB 3	K.1e	125 x 150
Left Hand	TL	K.2a	Transition HB to SP
Right Hand	TR	K.2a	Transition HB to SP
Left Hand	DL1	K.2b	Dropper Type 1 : HB to BN
Right Hand	DR1	K.2b	Dropper Type 1 : HB to BN
Left Hand	DL2	K.2c	Dropper Type 2 : 45° to BN
Right Hand	DR2	K.2c	Dropper Type 2 : 45° to BN
Channels:			
Channel Square	CS1	K.1f	255 x 125
Channel Square	CS2	K.1g	150 x 125
Channel Dished	CD	K.1h	255 x 125
Edgings:			
Round Top Edging	ER	K.3a	50 x 150, 200 or 250
Flat Top Edging	EF	K.3b	50 x 150, 200 or 250
Bullnosed Edging	EBN	K.3c	50 x 150, 200 or 250
Quadrants:			
Quadrant	QBN	K.3d	305 or 455 x 150 or 255
Quadrant	QHB	K.3d	305 or 455 x 150 or 255
Quadrant	QSP	K.3d	305 or 455 x 150 or 255
Angles:			
Internal Angle	IA	K.3e	125 x 255, HB1 or SP
External Angle	XA	K.3f	125 x 255, HB1 or SP

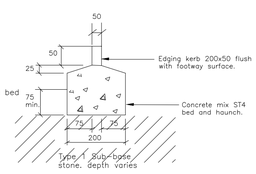


HALF BATTERED KERB

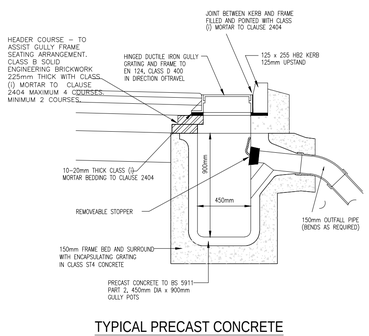
KERB BASE, KERB AND KERB BACKING LAID BEFORE CONCRETE SETS



BULLNOSED KERB



EDGING KERB



TYPICAL PRECAST CONCRETE GULLY DETAIL

REV	DETAILS	DRAWN	CHECKED	DATE
-	-	-	-	-

CLIENT:

MACBRYDE HOMES

PROJECT:

WREXHAM ROAD, HOLT

DRAWING TITLE:

S278 STANDARD DETAILS

SCALES:

NTS @ A1

DRAWN:	CHECKED:	DATE:
JC	MC	NOV 19

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DRAWING NUMBER: 2859-D004

REVISION: A

CROFT

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