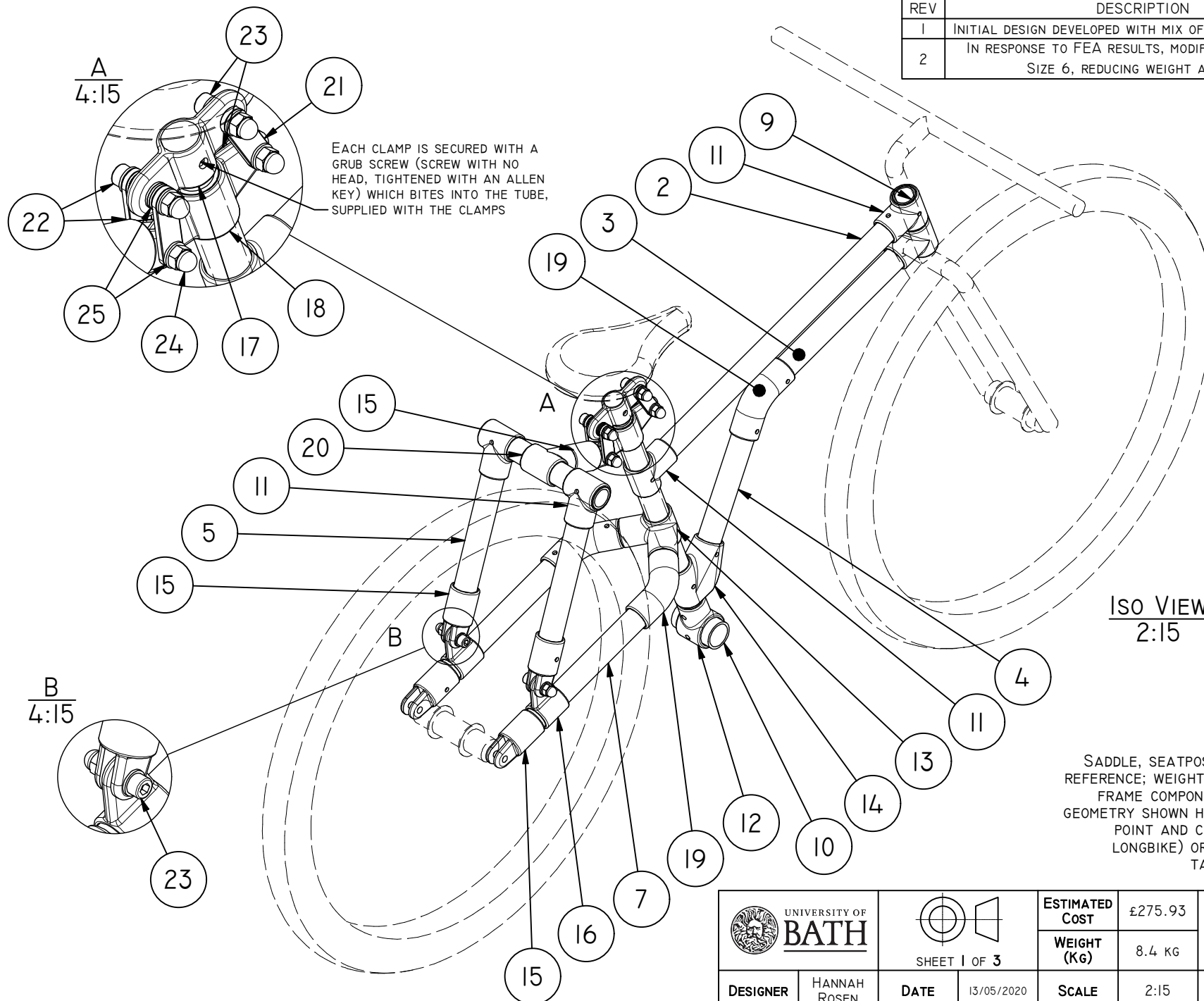


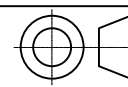
| REV | DESCRIPTION | DATE |
|-----|---|------------|
| 1 | INITIAL DESIGN DEVELOPED WITH MIX OF SIZE 6 AND SIZE 7 | 08/05/2020 |
| 2 | IN RESPONSE TO FEA RESULTS, MODIFIED TO USE ONLY SIZE 6, REDUCING WEIGHT AND COST | 10/05/2020 |



NOTE:
SADDLE, SEATPOST, AND WHEELS ARE SHOWN FOR REFERENCE; WEIGHT AND ESTIMATED COST APPLY TO FRAME COMPONENTS ONLY. THE SIMPLE BICYCLE GEOMETRY SHOWN HERE IS INTENDED AS A STARTING POINT AND CAN BE CUSTOMIZED (IE. FATBIKE, LONGBIKE) OR ADAPTED (IE. CARGO TRICYCLE, TANDEM) BY THE USER IF DESIRED.



UNIVERSITY OF
BATH



SHEET 1 OF 3

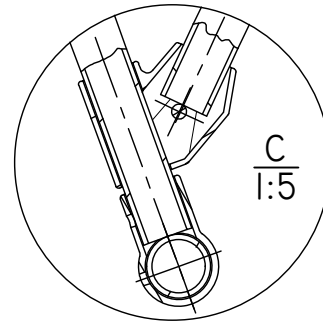
| | | | |
|-------------------|-----------------|---|------------|
| ESTIMATED COST | £275.93 | BICYCLE FRAME BUILD-IT-YOURSELF; CUSTOMISABLE; CONSTRUCTED FROM HAND RAILING CLAMPS; DESIGN FOR PERFORMANCE | |
| | WEIGHT (KG) | | |
| | 8.4 KG | | |
| DESIGNER | HANNAH ROSEN | DATE | 13/05/2020 |
| SCALE | 2:15 | BCL-DFP REV 2 | |

NOTES ON COMPATIBILITY:

COMPONENTS BELOW CAN BE TAKEN FROM A CHEAP SECOND-HAND DONOR BIKE OR PURCHASED SEPERATELY. USE SHIMS IF NECESSARY, LEAVING A GAP FOR THE CLAMP'S GRUB SCREW.

1. BOTTOM BRACKET: 73MM ENGLISH THREAD
2. FORK: 1" ISO STANDARD FORK STEERER. Ø41MM HT FOR A 1 1/8" FORK ALSO AVAILABLE (CEEWAY ZALC18210), BUT NEEDS SIZE 7 CLAMPS.
3. SEATPOST: 26-27.5MM OD FOR SIZE 5 CLAMP (M51-5, SHOWN HERE) OR 21-22.5MM OD FOR SIZE 4 CLAMP (M50-4).
4. WHEELS: 29" RIMS WITH 44MM TYRES AND 135MM REAR HUB SPACING SHOWN FOR REFERENCE. FOR LARGER WHEELS (OR LONGER WHEELBASE) - USE LONGER CS, SS, CSS, AND/OR SSS TUBES. FOR SMALLER WHEELS - USE SHORTER CS AND SS TUBES, AND/OR LONGER AXLE SPACERS (CSS SHOWN AT MINIMUM).
5. BRAKES: FRONT - ANY COMPATIBLE BRAKE. REAR - USE COASTER BRAKE OR CREATE ATTACHMENT POINTS FOR CALIPERS WITH ADDITIONAL CLAMPS.
6. GEARS: SINGLE SPEED OR HUB GEARS ARE THE SIMPLEST BUT NOT THE ONLY OPTIONS. CONSIDER THE WEIGHT OF THE ENTIRE BIKE WHEN SELECTING GEAR RATIO(S).

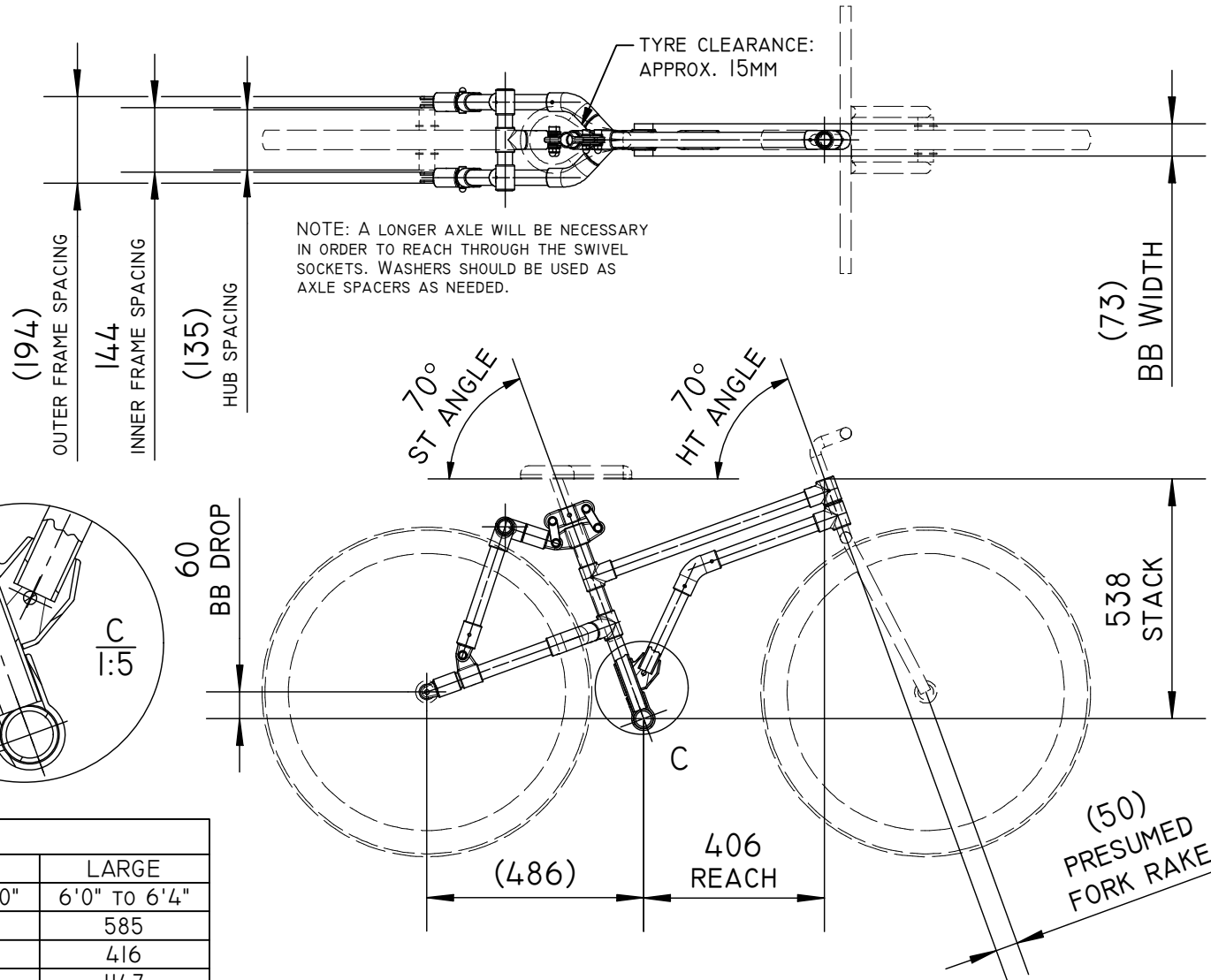
NOTE: ALL TUBE LENGTHS ARE PROVISIONAL AS THERE IS LIMITED INFORMATION ON HOW FAR INTO THE CLAMPS EACH TUBE IS INSERTED. LEAVING A 10-20MM MARGIN FOR ADJUSTMENT IS ADVISED WHEN CUTTING TUBES.

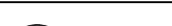



SAMPLE GEOMETRIES

| DIM | SMALL* | MEDIUM | LARGE |
|--------------------|--------------|--------------|--------------|
| RIDER HEIGHT (IN) | 5'3" TO 5'7" | 5'7" TO 6'0" | 6'0" TO 6'4" |
| STACK (MM) | 538 | 556 | 585 |
| REACH (MM) | 406 | 410 | 416 |
| WHEELBASE (MM) | 1120 | 1130 | 1147 |
| DTA LENGTH (MM) | 304 | 298 | 289 |
| DTB LENGTH (MM) | 230 | 252 | 288 |
| TT LENGTH (MM) | 532 | 542 | 557 |
| MASS (KG) | 8.4 | 8.4 | 8.4 |
| ESTIMATED COST (£) | 275.93 | 276.08 | 276.31 |

*SHOWN HERE



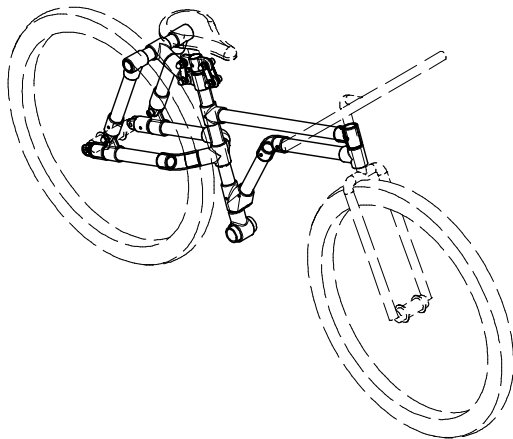
| | | | | | | |
|--|-----------------|---|------------|-------------------|---------|---|
|  <div>UNIVERSITY OF BATH</div> | |  <div>SHEET 2 OF 3</div> | | ESTIMATED COST | £275.93 | BICYCLE FRAME BUILD-IT-YOURSELF; CUSTOMISABLE; CONSTRUCTED FROM HAND RAILING CLAMPS; DESIGN FOR PERFORMANCE |
| | | | | WEIGHT (KG) | 8.4 KG | |
| DESIGNER | HANNAH ROSEN | DATE | 13/05/2020 | SCALE | 1:15 | BCL-DFP REV 2 |



PARTS LIST

| ITEM | PART NUMBER | REV | DESCRIPTION | QTY | SIZE | OD (MM) | LENGTH (MM) | MATERIAL | MASS (kg) | ESTIMATED COST | VENDOR |
|------|----------------|-----|----------------------------------|-----|------|---------|-------------|--------------------------|-----------|----------------|--------------------|
| 1 | ST | 2 | SEAT TUBE | 1 | 6 | 33.7 | 440 | ALUMINIUM 6082 T6 | 0.364 | £2.41 | SCAFFOLDING DIRECT |
| 2 | TT | 2 | TOP TUBE | 1 | 6 | 33.7 | 532 | ALUMINIUM 6082 T6 | 0.44 | £2.92 | SCAFFOLDING DIRECT |
| 3 | DTA | 1 | DOWN TUBE A | 1 | 6 | 33.7 | 304 | ALUMINIUM 6082 T6 | 0.252 | £1.67 | SCAFFOLDING DIRECT |
| 4 | DTB | 1 | DOWN TUBE B | 1 | 6 | 33.7 | 230 | ALUMINIUM 6082 T6 | 0.19 | £1.26 | SCAFFOLDING DIRECT |
| 5 | SS | 1 | SEATSTAY | 2 | 6 | 33.7 | 260 | ALUMINIUM 6082 T6 | 0.215 | £1.42 | SCAFFOLDING DIRECT |
| 6 | SSP | 1 | SEATSTAY SPACER | 1 | 6 | 33.7 | 228 | ALUMINIUM 6082 T6 | 0.189 | £1.25 | SCAFFOLDING DIRECT |
| 7 | CS | 2 | CHAINSTAY | 2 | 6 | 33.7 | 300 | ALUMINIUM 6082 T6 | 0.248 | £1.64 | SCAFFOLDING DIRECT |
| 8 | CSP | 2 | CHAINSTAY SPACER | 2 | 6 | 33.7 | 78 | ALUMINIUM 6082 T6 | 0.065 | £.43 | SCAFFOLDING DIRECT |
| 9 | OR0GI8I80 | - | HEAD TUBE | 1 | 6 | 32.4 | 115 | STEEL AISI 4130 | 0.188 | £10.00 | CEEWAY |
| 10 | BBSLEEVE73.42 | - | BOTTOM BRACKET | 1 | 7 | 42 | 73 | STEEL, MILD | 0.243 | £7.00 | CEEWAY |
| 11 | L10-6 | - | SINGLE SOCKET TEE | 5 | 6 | | | ALUMINIUM CAST | 0.13 | £9.56 | KEE SYSTEMS |
| 12 | 10-76 | - | COMBINATION SINGLE SOCKET TEE | 1 | 6.5 | | | IRON, CAST | 0.43 | £12.53 | KEE SYSTEMS |
| 13 | L21-6 | - | 90 DEG SIDE OUTLET TEE | 1 | 6 | | | ALUMINIUM CAST | 0.16 | £12.18 | KEE SYSTEMS |
| 14 | 29-6 | - | 30 TO 60 DEG TEE | 1 | 6 | | | IRON, CAST | 0.44 | £9.59 | KEE SYSTEMS |
| 15 | LF50-6 | - | FEMALE SWIVEL SOCKET | 5 | 6 | | | ALUMINIUM CAST | 0.17 | £8.64 | KEE SYSTEMS |
| 16 | LM50-6 | - | MALE SINGLE SWIVEL SOCKET | 2 | 6 | | | ALUMINIUM CAST | 0.12 | £10.97 | KEE SYSTEMS |
| 17 | M51-5 | - | MALE DOUBLE SWIVEL SOCKET | 1 | 5 | | | IRON, CAST | 0.33 | £10.30 | KEE SYSTEMS |
| 18 | LM51-6 | - | MALE DOUBLE SWIVEL SOCKET | 1 | 6 | | | ALUMINIUM CAST | 0.16 | £15.59 | KEE SYSTEMS |
| 19 | 55-6 | - | 120 TO 150 DEG ELBOW | 3 | 6 | | | IRON, CAST | 0.51 | £9.01 | KEE SYSTEMS |
| 20 | L114-6 | - | SWIVEL TEE | 1 | 6 | | | ALUMINIUM CAST | 0.18 | £18.50 | KEE SYSTEMS |
| 21 | LINK | 1 | SEATPOST CLAMP LINK | 4 | | | | ALUMINIUM 6082 T6 | 0.016 | £3.00 | CUSTOM |
| 22 | M10x35 SHCS A2 | - | M10 x 35MM SOCKET HEAD CAP SCREW | 2 | | | | STAINLESS STEEL AISI 304 | 0.041 | £.66 | Accu |
| 23 | M10x45 SHCS A2 | - | M10 x 45MM SOCKET HEAD CAP SCREW | 4 | | | | STAINLESS STEEL AISI 304 | 0.035 | £.65 | Accu |
| 24 | M10 DN A2 | - | M10 DOME NUT | 6 | | | | STAINLESS STEEL AISI 304 | 0.019 | £.62 | Accu |
| 25 | M10 W A2 | - | M10 WASHER (2MM THICK) | 18 | | | | STAINLESS STEEL AISI 304 | 0.004 | £.23 | Accu |

NOTES:

- SADDLE, SEATPOST, AND WHEELS ARE SHOWN FOR REFERENCE; WEIGHT AND ESTIMATED COST APPLY TO FRAME COMPONENTS ONLY.
- THE SIMPLE BICYCLE GEOMETRY SHOWN HERE IS INTENDED AS A STARTING POINT AND CAN BE CUSTOMIZED (IE. FATBIKE, LONGBIKE) OR ADAPTED (IE. CARGO TRICYCLE, TANDEM) BY THE USER IF DESIRED.
- GRUB SCREWS MUST BE TIGHTENED TO 40NM WITH A TORQUE WRENCH. A GOOD QUALITY THREAD LOCKER MUST BE USED ON ALL THREADS. LOCTITE 243 IS A GOOD CHOICE AS IT IS STRONG ENOUGH TO RESIST LOOSENING DUE TO SHOCK AND VIBRATION, BUT CAN STILL BE DISASSEMBLED WITH HAND TOOLS. IT ALSO TOLERATES CONTAMINATION WITH OIL TO A CERTAIN EXTENT (SUCH AS CHAIN GREASE). CHECK GRUB SCREWS REGULARLY AND RE-TIGHTEN TO 40NM IF NECESSARY.
- CARE SHOULD BE TAKEN TO CHOOSE A FORK, BOTTOM BRACKET BEARINGS, WHEELS, AND OTHER COMPONENTS WHICH ARE COMPATIBLE WITH THE FRAME COMPONENTS (SEE SHEET 2).
- ALL TUBE LENGTHS ARE PROVISIONAL AS THERE IS LIMITED INFORMATION ON HOW FAR INTO THE CLAMPS EACH TUBE IS INSERTED. LEAVING A 10-20MM MARGIN FOR ADJUSTMENT IS ADVISED WHEN CUTTING TUBES.
- MORE INFORMATION CAN BE FOUND AT: [HTTPS://GITHUB.COM/HANNAHROSEN57/ADJUSTABIKE-2.0](https://github.com/HANNAHROSEN57/ADJUSTABIKE-2.0)



| | | | | | | |
|--|-----------------|---|------------|-------------------|---------|---|
|  UNIVERSITY OF BATH | |  SHEET 3 OF 3 | | ESTIMATED COST | £275.93 | BICYCLE FRAME BUILD-IT-YOURSELF; CUSTOMISABLE; CONSTRUCTED FROM HAND RAILING CLAMPS; DESIGN FOR PERFORMANCE |
| | | | | WEIGHT (KG) | 8.4 KG | |
| DESIGNER | HANNAH ROSEN | DATE | 13/05/2020 | SCALE | 1:20 | BCL-DFP REV 2 |